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NOTE.—Communications relative to the editorial management should be addressed to Mr. ROTHWELL. Articles written by Mr. RAYMOND will be signed thus *

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ADAM SCOTT CAMERON.

This gentleman died at his residence, in this his native city, on the 15th of October, in the 34th year of his age.

Mr. CAMERON was well known as a mechanical engineer, whose name is identified with many improvements in steam-pumping machines. For many years his manufactory of this class of machinery has been, we believe, the largest of its kind in the United States. Pumps manufactured by him, or on his designs, may now be found in every part of the world. Mr. CAMERON was the first to introduce in Europe the class of "direct-acting steam pumps" so familiar to the readers of this JOURNAL.

As an ingenious and skillful mechanical engineer, a large and representative manufacturer, an enterprising, energetic, and honorable business man, and a just and considerate employer, Mr. CAMERON will long live in the memory and affection of a very large number of personal friends and professional acquaintances.

THE DOLLAR OF THE FATHERS AND THE FATHERS OF THE DOLLAR.

The silver dollar party secured, on Monday last, in a thinly attended House of Representatives, and by a disreputable trick, the passage, without debate or amendment, of a bill establishing the unlimited coinage of the dollar of 412½ grains of standard silver, and making it a legal tender at its nominal value "for all debts and dues public and private, except where otherwise provided by contract."

Considering with what persistency of manufactured indignation this party has circulated the falsehood that the Act of 1873 was passed without due consideration of its provisions concerning the silver coinage, the disgraceful haste with which the folly of remonetization has been attempted would excite amusement, if it did not arouse indignation. Ever since the extra session began, the demagogues have been engaged in a scramble, each striving to be first in presenting what he thought would be a popular measure with his local constituents. The army waiting for bread, the courts of justice without the means of administering justice—such things as these were of no importance, compared with the ambition of a score of politicians to be recognized as the new fathers of the old dollar. History, if it does not forget them utterly, will save them from oblivion by elevating them to ridicule. When another MACAULAY shall write the record of our times, he may find room for a few such strokes of satire as those with which the great English historian has fixed for ever on the canvas for the laughter of the world, the advocates of the "little shilling." But then, History does not reelect a politician to Congress, and Buncombe sometimes does.

The form in which this bill has passed the House is a new blunder on the part of its reckless and clumsy promoters. Its sweeping provisions, apparently intended, as they are, to permit the payment of the public debt in depreciated dollars, will certainly not pass the Senate or secure the approval of the President. We can but thank the inflation-repudiation-depreciation party for having made so complete and clear an exhibition of folly.

There might have been a movement to remonetize silver on the basis of its present market value. We should oppose that plan; because we are opposed to every plan involving a double standard. The legal relation cannot be kept in accord with the market relation, and the result is the disappearance of one or the other metal from circulation. But what shall be said of a measure which chooses to begin with a legal relation of the two metals widely different from their market relation—which legislates at once the very evil to be fraud? There is but one meaning to such a measure. The advocates of silver are demonetizing gold and lowering the standard of coinage.

It is well that the epidemic has taken this extreme form. The doctor who always sought to throw his patients into fits because he knew what was good for fits, may now be imitated by our people, who, though they may be perplexed with the various schemes of currency-tinkers, have at least learned to know inflation and repudiation when they see them. Fits of that kind have been cured once or twice by the ballot; and perhaps the sudden appearance of the silver fever in this better-known form may be a providential preparation for a complete recovery.

But there is another feature in the bill passed by the House, which stamps it with the infamy of a corrupt job. Its combination of unlimited coinage for individual depositors, with unlimited legal tender for debts, is nothing else than a scheme for enabling the holders and producers of silver bullion to realize a large profit on it, at the cost of the country. If 92 cents' worth of silver is to be called a dollar, why should not the Government save the 8 cents by buying silver at the market price and issuing it at the coinage value? We think such an operation would be unwise and unworthy statesmanship, but it would not be, like this precious performance of BLAND'S, a vulgar grab.

The story that the President has expressed his intention to sign "the silver bill," if it should pass the Senate, is not credible. We have seen nobody who expects the bill in its present state to pass the Senate, and, as to the President's action with regard to any measure yet unformed, he will scarcely make haste to pledge himself in advance.

THE WATER-GAS QUESTION IN PHILADELPHIA.

We give a large part of our space this week to this question, for it is one which interests many persons outside of Philadelphia. The war wages hot, and the citizens naturally want to know why the Philadelphia Gas Trust should charge $2.15 per 1,000 for gas, while the Harrisburg Gas Company, of which Mr. Nathan Hilles, President of the Philadelphia Gas Trust, is one of the chief owners, furnishes a better gas for $1 per 1,000. The reason reported to have been given by Mr. Hilles in a recent interview, why the Lowe gas is not generally adopted in Philadelphia, is probably nearly correct: it would so largely reduce the number of workmen necessary as to threaten the influence of the Gas Trust as a political machine.

Our correspondent, Mr. Dwight, calls attention in very convincing terms to many discrepancies and oversights in the report of Messrs. Rogers & Stevens, published elsewhere. Examinations which have since been made independently by two distinguished chemists have established the fact that the Lowe gas at Manayunk is superior to the coal gas furnished by the other works of the Trust, being about 20 candle power. We hope to be able shortly to publish the reports here referred to.

We hear of so many evidences of trickery and insincerity in the political managers of the Philadelphia Gas Trust, that their adoption or rejection of this, or any other, improvement in gas-making would not for a moment be considered as competent evidence for or against the value of the system, but rather the result of political or ring requirements. But the substantial success of the Lowe gas process has been proved in so many places already that its future will not depend on what these politicians may do or say in the matter. On the 15th inst. this process will be put in operation and supply one-half of the consumers in Baltimore—the new works there being very extensive and valued at some millions of dollars. In Indianapolis the process is about starting, and in many other places works on this plan are now in operation or are being built. The questions which have the greatest interest to engineers and large consumers of heating gas are being investigated, and before long we shall be able to lay before our readers reliable and valuable expert statements. Sufficient is now established beyond any question to cause us very sincere regret at seeing so well known a physicist as Prof. MORTON of the Stevens Institute lending his name to a statement of analysis and opinion that will certainly compromise him very seriously as a chemist, though he can probably disclaim being an "expert," in this branch of the profession.

OUR ILLUSTRATIONS.

We feel justified in referring with satisfaction and with some pride to the beautiful illustrations with which the pages of the ENGINEERING AND MINING JOURNAL have been enlivened for some time past, for nothing to equal them in execution or number has ever before appeared in a technical paper in this country. Nothing could possibly show more clearly or instructively the geologic as well as scenic features of the great cañons of the Colorado River of the West than the beautiful engravings, most of them from drawings by Mr. T. MORAN, which we have taken from Major POWELL'S interesting Report. They teach better than could volumes of verbal description the manner of formation of these marvelous and mysterious gorges, and the effect which faults in the rock foundation have upon the surface topography. The lessons so clearly taught in these illustrations, and their accompanying text, will give many students of geology a far juster appreciation of common causes and their effects in geology than could be obtained from districts where the plications of the strata and faults are more complicated.

It is, however, more particularly of our original sketches, two of which

are in the present number of the JOURNAL, that we desire to speak: Our staff correspondent, Mr. T. F. VAN WAGENEN, a mining engineer of skill and wide experience in Western mining, who has charge of our Denver office, has taken up with great spirit this new and very important feature of a mining journal—the artistic representation of mines and mining districts—and he has had the good fortune to have secured the assistance in his work of General FRANCIS L. VINTON, who unites in a rare degree the thorough education and experience of the mining engineer with the skill of an acomplished artist. The sketches of the First National Gold Mine and of the Slide Mine though handsome, lost some of their "spirit" in the reproduction from General VINTON's drawings. The sketches of the French Gulch, published in this number of the JOURNAL, more successfully reproduce their clever originals, and we are sparing no expense to secure by the best wood and photo engravings faithful reproductions of these drawings, which, while highly artistic, show also, in their minutest details, the accuracy and knowledge of the engineer. We have several of these Colorado sketches now in the hands of our engravers, while the number already arranged for by Mr. VAN WAGENEN, and on which General VINTON is now engaged, will furnish each number of the JOURNAL, up to next summer, with large plates, many of them requiring double-page supplement sheets. In this manner we shall illustrate, and with a degree of excellence never before attempted by a technical journal, every phase of practical mining and metallurgy, and will make the mines and mining districts of all parts of the country as familiar as household words to the many thousand readers of the JOURNAL.

THE COAL MINES.—While preparing these descriptions of our gold and silver mines, we shall not neglect our coal and iron mines and industries nearer home. For some time past we have had a special artist at work in the anthracite regions preparing a series of drawings, which will show in the most artistic and at the same time accurate manner all the operations of mining and preparing anthracite, and will exhibit, in a manner no less pleasing and instructive to the non-professional reader than satisfactory to the engineer, the mines and complex geological features of the anthracite coal basins.

We have now enumerated enough of the good things already engaged and in active preparation to justify us in inviting the attention of our readers to the subject, and of asking those interested in mining or metallurgy, and who wish to secure the full set of these beautiful and valuable engravings, to subscribe at once for the JOURNAL. We find it even now impossible to supply many back numbers of the JOURNAL, and the constantly increasing demand will make it difficult to supply, a very short time hence, the numbers we are now issuing.

Our next issue will contain on a "Supplement" sheet a fine engraving showing the Frue system of ore concentration as practiced at the Everitt Mill, Colorado. Manufacturers and business men who desire, through our advertising columns, to bring their goods to the attention of purchasers of mine supplies and machinery, will do well to avail themselves of the large extra editions we are now publishing.

NEW PUBLICATIONS.

THE ELEMENTS OF PLANE TRIGONOMETRY. By H. N. WHEELER, A.M. Boston: Ginn & Heath. 1877. 12mo, pp. x, 190.

This book adopts the common practice of making logarithms an essential part of trigonometry, while the triangles which the surveyor uses are solved more quickly without them. If the two sides of a right triangle are known, the hypothenuse is at once found by the theorem of Pythagoras; but this method is here rejected as "not being adapted to logarithmic computation." Logarithms are merely a device for abbreviating calculations, and they should not be used in trigonometry until the student understands how to work without them; for it is only by actual practice with real sines and tangents that a thorough understanding of trigonometric processes can be attained. As an introduction to the higher mathematics this is an excellent book, the theoretical part (the *goniometry*, as the Germans call it) being presented ably and far more satisfactorily than in our common text-books. M.

AN ANALYSIS OF THE REPORT OF DRS. R. E. ROGERS AND LEMUEL STEVENS TO THE TRUSTEES OF THE PHILADELPHIA GAS WORKS UPON THE LOWE PROCESS AT MANAYUNK.

By Geo. S. Dwight.

The investigation of new methods for the generation of illuminating gases not only opens a wide and attractive field for the expert, full as it is of subtle questions in chemical analysis, but the subject is one of great popular interest. Our American communities have within the last few years reached the conviction that the cost of gas light is unreasonably high, and now occupy a position of antagonism towards the companies, such as led some time ago in England and Continental Europe to stringent governmental interference between manufacturer and consumer. Hence, the trial of the Lowe process upon an increased scale of practical operations, at Philadelphia, was watched with much interest, because its uniform success on an ascending scale at various other places had given promise of usefulness.

It was, therefore, with regret, not to say surprise, that after long delays it was rumored that the experts of the Gas Trust had reported adversely upon it. As a very spirited controversy is at present in progress in that city between the City Council, the gas trustees, and the press as to the fairness of the trial accorded to the new system—a discussion to which many other communities are listening,—a presentation of some facts connected with the examination of Drs. Rogers and Stevens, and an analysis of their report, may be opportune.

It should be stated that the works at Manayunk were erected without any cost to the Philadelphia Gas Trust by private parties upon the following terms:

The contractor was to have control of the holder used for that district, and was privileged to make 200,000 cubic feet per day at a specified price, provided so large a quantity was required for local distribution. On a fulfillment of the contract the cost of the works was to be paid by the Trust, which was thereafter to have license for use of the process on payment of a stipulated royalty. These facts are mentioned as interesting evidence that the onus of the trial lay on the contractor. It was provided that the gas delivered into the holder should possess standard illuminating power, viz.: 16 candles; that it should not exceed 600 density; that its cost in holder should be within a prescribed price, and that it should be no more liable to condensation than coal gas.

These four points were left to the determination of Dr. R. E. Rogers, of Pennsylvania University, and Prof. Lemuel Stevens, of Girard College, who, upon the 11th May last, rendered this report. It is published in connection with this paper, and reference thereto is asked in the review which it is designed to make herein, of the circumstances attending the investigation and the methods employed. (*See page* 349.)

First. The circumstances at the time of the examination were peculiarly unfavorable, and rendered it almost impossible to obtain accurate or trustworthy results. The new method which, up to this period, had been making the entire supply for that district, was suddenly restricted to a small proportion, the remainder being derived from the coal-benches. The gas in holder was in consequence a mixed one, which it was not desired to study, and the experts were therefore compelled to depend for their investigation upon samples drawn back of the holder at the meter inlet. This expedient is an exceedingly doubtful one in any gas system, but is precarious in the extreme in the Lowe process, which, in an increased degree, depends on the law of diffusion in holder for an equalization of the gases, which in their generation are inconstant both in volume and quality. For this disadvantage the examiners were, of course, in no way responsible. They admit it embarrassed their labors, but they express the belief "that with the precautions taken no serious error has arisen from that source." From this belief, however, the writer most respectfully, but emphatically, dissents, and not on theoretic grounds merely, but because the results and deductions of these gentlemen vary so widely from those reported by other experts, equally eminent, whose investigations at Manayunk and elsewhere were conducted under more favorable circumstances, as to point to this fact as a source of error. If the Philadelphia trustees were sincerely desirous of settling strictly upon its merits a question of great public importance, a period somewhat earlier or later might have been selected for its determination, when the process was operating independently, and this grave disadvantage would thus have been avoided.

Second. Another objection is raised against the treatment of the samples thus obtained. The taking of illuminating gas for test by water displacement, and in rubber bags, is not now practiced where accuracy is demanded, because of more or less action on the sensitive hydrocarbons, etc. Nor is the conveyance in midwinter over long distances, repeated transfers by means of water, and a suspension over the same for weeks, calculated to improve the luminosity of gas. Regarding the tests themselves as reported by Messrs. Rogers and Stevens, exception is taken to the manner in which many of them were made, and especially to the form in which they are presented in the report, since by reason, principally, of the omission of data, it is not possible for their professional brethren to check their calculations and determine their correctness; hence the exact value of the examination is left undecided.

First. The question of condensibility, which is of great importance, since upon the permanency of a gas depends the ability of the manufacturer to give the distant consumer a satisfactory quality of light, beside saving the cost which loss in transit necessarily involves, is not commented upon. This is the stranger since very interesting tests were made with remarkable results, as follows: A coil of fifty feet of one-half inch lead pipe was packed in a cask of ice, snow, and salt until a temperature of zero was obtained, into which the Lowe gas was admitted and held for sixty minutes. Photometric observations before and after this test showed a loss of illuminating value of less than one-half of one candle, and no deposit in the coil. For comparison the city gas made from coal was similarly exposed, and ceased to burn in three minutes, leaving considerable residuum in the pipe.

Second. The density of the gas is another matter not only of practical moment, but so indispensable in a determination of other questions under investigation and for a verification of analysis, that the silence of the report on this point creates surprise.

Third. The illuminating power of the Lowe gas seems to have been selected as the determining point of the whole investigation; and since its alleged insufficiency constitutes the sole and only objection raised against it by Messrs. Rogers and Stevens, and this is an objection never before raised, it will be pertinent to review with special care their treatment of this part of the examination. On the occasion of their first visit to Manayunk it appears that the holder was in the control of the Lowe process, and a test is mentioned as having been made on the spot, which gave the value at 12·51 candles only. This is the only test free from the objections heretofore mentioned, but the report does not state in what kind of a burner the gas was used, and the entire experiment involved only five one-minute observations, so that its value is very questionable. It should here be remarked that as the principle of the determination of illuminating values is based upon the relative light given out by the consumption of 120 grains of spermaceti in comparison with five cubic feet of gas during the same period of time, usually one hour, so it is extremely unsatisfactory to rely upon a few one-minute tests, because, while the consumption of the gas is constant, that of the candle is variable, showing a difference frequently of several points in as many minutes. Moreover, the density of a gas is in this connection entitled to consideration in the adaptation of the burner to its peculiarity in this respect. Certainly, no just comparison lies between the illuminating power of the coal and Lowe gases, in the manner proposed by the experts of the Gas Trust. They assert that "at the time of the experiment the city gas gave, with a 15-hole Sugg 16-candle burner, 17.75 candles"; and then give the average aggregate result of 56 one-minute tests, variety of burner not stated, at 18·48 candles. And in this average is included ten observations at zero, at which temperature, as has been previously remarked, the coal gas ceased even to burn. In other words, these gentlemen would have one single test of Philadelphia gas, under the most favorable circumstances, decisive as against the average of a number of observations of the Lowe gas, many of which were made under peculiarly unfavorable conditions. It would have been an easy step to still further reduce the average value of the latter by introducing a test with the Bunsen burner!

In enumerating trials of different burners they report that a 19-candle 27-hole burner gave only 9 candles, and yet this identical burner yields to other reputable experts at Manayunk 19·81, and at Lancaster 20·27 for the Lowe gas. Such glaring discrepancies as these justify the inquiry, whether in the investigation of Messrs. Rogers and Stevens any copper instruments or coils were used? The absorbing power of this metal on the luminous hydrocarbons is so well understood now that it would not be employed when accurate determinations were desired.

On the basis of these observations, open, as has been seen, to very serious objections, the experts conclude "that the Lowe gas manufactured at Manayunk and supplied to us *in the manner described* [the italics are used by the writer] is

inferior in illuminating power to that of the city gas as at present made from bituminous coal."

Then follows an acknowledgment which is a full concession of the whole matter, viz: "It should, however, be stated here that since the Lowe gas owes its illuminating value (all other things being equal) to the amount of hydrocarbons it contains, derived from crude petroleum, *it is in the power of the manufacturer to control within a wide range its quality* by the use of a larger or smaller quantity of the oil" (italics as before). This admission virtually concedes the point at issue, the illuminating power having been the only ground of their objection to the system.

The question raised relative to the supply of petroleum has been pretty well settled by events later than the report, but it may be interesting to state that coal-oil, which can be put into market at a competing price with petroleum, is at least equally desirable for enrichment, and presents a safe alternative to the manufacturer.

Fourth. Composition.—The analyses, as the averages of repeated tests, are, if correct, very interesting, and especially so as developing a feature entirely novel in the manufacture of gases into which water-products enter. Reference is made to the unexpectedly small percentage of carbonic oxide shown in the tables. So large a disappearance of oxygen is phenomenal, and opens some exceedingly interesting chemical questions not pertinent here. It is to be regretted, again, that the density of the gas analyzed is not given, that the accuracy of the figures presented might be tested by computation. But for the purposes of this review the analyses are valuable to this extent, that they confirm the doubt already cast upon the photometrical observations. A comparison of the composition of the "Lowe gas taken from pipe tapped between purifiers and large meter" (and which was the gas tested for candle power; with that of the city gas, leads to the conclusion that the former would burn with a higher illuminating value than the latter. Its percentage of olefiant gas is very nearly identical, with a strong probability of a larger proportion therein of acetylene, one of the most luminous hydrocarbons, while the marked increase of hydrogen in the Lowe gas should secure a higher flame temperature and a consequent increase of luminosity. In addition to this, the large decrease below the Philadelphia gas of those impurities which are known to reduce the candle-power of gases is quite noticeable. The presence of the proportion of nitrogen and oxygen mentioned, it is believed, might be charged to the entrance of atmospheric air into the sample during the transfer.

Cost.—On this very practical point the experts express no opinion, but would give, without comment, the quantities of coal and oil used during time of the investigation. These, however, confirm the claim heretofore made, that 50 lb. of anthracite and three gallons of crude petroleum are sufficient for the production of 1,000 cubic feet of illuminating gas, and strengthens the opinion that the Lowe process is capable, by its reduced cost of production, of competing with the manufacture of coal gas.

In conclusion, it is impossible to escape the conviction that, for the purposes of determining so important a public matter as the possible supply of a good quality of illuminating gas at a reduced price to the consumer, the report of Messrs. Rogers and Stevens is not competent, and this conclusion is reached solely by an analysis of the report itself, independent of examinations by other professional gentlemen, which may be presented hereafter.

THE GOLD MINES OF FAUQUIER COUNTY, VIRGINIA.

By J. H. Morton, M. E.

These mines are situated in the eastern part of Fauquier County, and form part of what is commonly known as the Virginia Gold Belt, this belt being the northern extension of the Appalachian gold fields, which extend from the north of the Potomac into the State of Alabama. The width of the belt, where it is crossed by the Rappahannock River, is about twelve miles, and the belt is traversed by innumerable veins of quartz, striking in every direction, though the course of the larger vein is from northeast to southwest. The country rock is talcose and mica schist, much decomposed near the surface, and generally of a red or brown color, owing to the peroxide of iron it contains. The beds of schist are upturned at different angles, generally from 81° to 85°, and generally incline towards the northwest, while the lodes nearly as generally dip towards the southeast, at angles varying from 30° to 80°. Thus, while the veins conform to the course of the beds along their strike to some extent, they run directly counter to them upon their dip. The schists are traversed by large dikes of porphyry, running from southwest to northeast, and are flanked upon the west by a broad belt of hard, fine-grained syenite. This syenite belt does not rise into hills, but is covered by what is known as the "marsh country." The mines are reached most readily from Bealeton and Rappahannock Stations, on the Virginia Midland Railroad, and lie at the nearest point about six miles east of the railroad. The greatest activity is displayed by the Washington and Philadelphia companies. I visited a number of the mines, and found a good state of feeling existing among the miners, and great confidence is felt in the permanence and wealth of the mines, as work is carried towards the deep. Among other mines I visited the following:

THE BANCROFT MINE

Is owned by Mr. Bancroft, of Philadelphia. It is developed by four shafts, with connecting levels. There are about 500 tons of ore upon the dumps. The main shaft is sunk in the north wing of the mill, from which ore can be delivered from the mine directly to the rock breaker. The mill itself is one of Walker Bros.' lightning mills, and has a fine forty horse-power engine; but the mill does not seem to work well, as in two years that have elapsed since it was erected the greater part of the time has been spent in repairing the machinery, though only some thirty-five tons of ore have been treated during that time, twenty-five tons of which have been worked during the month of October past. The yield, I am informed, was from $13 to $15 per ton, which is certainly sufficient to make a very good paying mine.

THE KIDWELL MINE

Is situated about two miles south of the Bancroft, and is one of the best developed mines in the county, having about two thousand feet of tunnels, drifts, and shafts upon the different veins opened, and have from two thousand to twenty-five hundred tons of ore upon the dumps ready to mill. The company (a Washington one) is erecting a ten-stamp mill, with a set of Frue vanners, chloridizing apparatus, hoisting and pumping machinery, and appears to be going to work to save all there is in the ores. A recent shipment of five tons of ore to Crooke Bros.' Smelting Works in New York yielded $65 per ton, and other lots worked at local mills have yielded $17 per ton in free gold, and a concentrate equal to 10 per cent. of the ore, worth $100 per ton. The ore yields good quantities of gold in the pan, and will very probably give the owners satisfactory returns.

THE EMBRY MINE

consists of two tracts adjoining each other, known as the Embry and Brooks. Eleven veins have been opened upon the two tracts, all of which carry gold either visible to the eye or in condition to be readily obtained in the gold pan. An average of five samples taken from as many different veins gave $42 per ton, and a concentration of a lot of ore yielded $207.90, $8.99 of which was silver. Commodious buildings have been erected for winter work, and ore is now being shipped to fill a 50-ton contract with the Ellis mill.

THE ELLIS MINE

has a force of 35 men, and about 200 tons of ore are on the dump ready to be put through as soon as the improvements being made upon the mill are completed. The mill, containing ten stamps, is being equipped with a Frue vanner, arastra, and a complete string of copper plates, over which the ore will finally pass. The mine was worked before the war with excellent results, and is now developed for a length of 300 feet along the lode and to a depth of 110 feet. In the lower part of the mine considerable quantities of iron pyrites are found, but they are scarcely objectionable as they are easily concentrated and contain an average of $175 per ton.

THE FRANKLIN MINE

has been worked in a desultory manner at different times during the past forty years, and there has been extracted during that time something like 100,000 tons of ore that has yielded an average of about $12 per ton. The mine is now badly caved and flooded for a distance of 860 feet, and as the creek flows over the caved portion of the mine a regular lake has been formed in the worked out portions of the lode. The last attempt to work the mine was made by one of those electro-chemical process fellows that are always going to do wonderful things, but always fail to do anything more than any of the rest of their pestiferous kin have done, that is, shove off their wares and let their victim pocket his loss. The mine had considerable merit in former days, and is evidently not yet worked out.

THE WATERMAN MINE

adjoins the Franklin on the south, has a ten-stamp mill, and several shafts sunk on the lodes of the property, at one of which there is a pumping engine, but no hoisting works. The mine appears to have been badly managed, as the superintendent evidently knew nothing of mining or metallurgy. The mine has been idle about three months, though the ore is said to contain an average of $30 per ton. The ore is apparently free from pyrites, and looks like an excellent milling ore.

LABOR AND EXPENSE

of mining is quite low. Good laborers can be readily obtained at 75 cents a day, and miners at $1 to $1.50 per day. Wood delivered costs $1 to $1.25 per cord; lumber, from $5 to $12 per M.; living is fair, and the people disposed to treat strangers courteously and well. The ores, as above indicated, are of fair grade, though not rich; still, the immense quantity makes up for the apparent poverty of the ores. The veins are generally large, well defined, and run for considerable distances without much change in size or quality. When we consider that a quiet gold-mining camp exists within ten hours' ride of Wall street, we see that it must possess advantages of location superior to any of the mining districts of the West.

ESTABLISHMENT OF SMELTING WORKS IN MAINE.—A project is on foot at Portland, Me., to establish smelting works in that city to smelt the ores of the Maine, Vermont and New Hampshire mines. It is proposed to give mine-owners an opportunity to dispose of their ore at a fixed market price.

CLOSING IN OF THE ST. NICHOLAS COLLIERY.—The Pa. Mahanoy *Record* of the 1st inst. says: "The upper lift in the slope at the St. Nicholas Colliery is closing in. It is rumored that this colliery intends stopping shortly; in case this is done, a large amount of coal will be lost."

MINING INJUNCTIONS FOR NON-REQUIREMENTS WITH THE LAW.—Mr. William Hemingray, Pa. Mine Inspector of the Third or Shamokin District, has issued injunctions against the Cameron Colliery, operated by the Mineral Railroad & Mining Company, and the Big Mountain Colliery, operated by Patterson, Llewellyn & Co., to restrain them from working until they have complied with the requirements of the law.

THE NEW SALT SHAFT AT GODERICH, ONTARIO.—A few weeks ago we noticed that this new shaft has met with an accident—had been flooded. The accident we have since heard was not occasioned, as stated, by a storm on the lake, being some 500 feet distant from the shore, and some 40 feet above the level of the water, but was from insufficient strength in the temporary cribbing. We are informed the damage has since been repaired and the work of sinking will be pushed forward energetically. The shaft is now down some 68 feet.

FURTHER DISCOVERIES OF POTASH BEDS IN PRUSSIA.—Previously to the Stassfurth potash discoveries the sole supply of that article was practically derived from wood-ashes, and its applications, owing to its expense, were necessarily limited. For nearly twenty years past the Stassfurth and Leopoldshall deposits have been worked by the Governments of Prussia and Anhalt, which have enjoyed, until quite recently, an entire monopoly of profits. Lately, however, a company of enterprising explorers, including many gentlemen well-known in scientific circles, have, by the aid of the diamond rock boring apparatus, succeeded in striking valuable and extensive beds of a similar nature near Aschersleben and beyond the limits, though still in the neighborhood of the mines held by the foreign government authorities alluded to. A third boring has been completed at a depth of 1,486 feet, two previous borings having measured respectively 994 feet and 1,023 feet, and a fourth is in progress. Not only has a layer of potash salts of high-class quality been found to exist in great thickness, but a pure deposit of rock-salt has been ascertained to overlie it. Under the German mining laws the English explorers are entitled, in virtue of their discovery, to a handsome concession of these subterranean potash fields to the extent of from 5,000 to 6,000 acres. As the first layer of kainite pierced was 50 feet thick, and as subsequent measurements indicate, in some spots, a probable thickness of more than 100 feet of kainite, in addition to a considerable quantity of the mineral carnalite and other salts, a cheap and practically unlimited store of potash is thus rendered available for many years to come. Among the chief commercial compounds yielded by potash are the carbonate, chlorate, prussiate, chromate, bichromate, hydrate, nitrate, silicate, and sulphate of potash, and the chloride, bromide, and iodide of potassium. Some one or other of these various products are used either directly or indirectly in the manufactures of soap, glass, saltpetre, alum, matches and colors; for cotton printing, washing, spinning, dyeing, bleaching, etc.; for numberless metallurgical, preserving, purifying, and precipitating purposes; and lastly, to an enormous extent, both here and abroad, for manure. Indeed, potash may be said to be utilized in some way or other in most modern industries, and its technical applications bid fair to increase with the cheapness of its supply.

THE VALLEY OF THE COLORADO RIVER, AND ITS GEOLOGY.—XV.*

THE GRAND CANON.

Through these tables the Colorado runs in an easterly and westerly direction, in a deep gorge, known as the Grand Cañon.

The varying depths of this cañon, due to the varying altitudes of the plateaus through which it runs, can only be seen from above. As we wind about in the gloomy depths below, the difference between 4,000 and 6,000 feet is not discerned, but the characteristics of the cañon—the scenic features—change abruptly with the change in the altitude of the walls as the faults are passed. In running the channel which divides the twin plateaus we pass around the first great southern bend. In the very depths of the cañon we have black granite, with a narrow cleft, through which a great river plunges. This granite portion of the walls is carved with deep gulches and embossed with pinnacles and towers. Above are broken, ragged, non-conformable rocks, in many places sloping back at a low angle. Clambering over these we reach rocks lying in horizontal beds. Some are soft; many very hard; the softer strata are washed out; the harder remain as shelves. Everywhere there are side gulches and cañons, so that these gulches are set about ten thousand dark, gloomy alcoves. One might imagine that this was intended for the library of the gods, and it was. The shelves are not for books, but form the stony leaves of one great book. He who would read the language of the universe may dig out letters here and there, and with them spell the words and read, in a slow and imperfect way, but still so as to understand a little the story of creation.

These rust-colored shelves have above them 'soft shales, of a lemon color, and in ascending the wall we climb them by passing up a steep slope, curiously carved by innumerable rainy-day rills. Above these we find homogeneous limestone, a thousand feet in thickness, standing in vertical cliffs. On top of this great bed we find soft sandstones, so washed away as to leave comparatively flat spaces of solid rock above—a bench on which we can walk on the side of the Grand Cañon, more than four thousand feet above the river. In this part of its course the channel is very tortuous. Many streams head in the Kaibab Plateau to the north, and the Coanini Plateau to the south, and run down into the Grand Cañon; and these have their lateral cañons, and a third and fourth system of side gulches are seen, all having winding ways. Now, suppose that we start on this bench, where the Grand Cañon cuts through the second of the Eastern Kaibab Faults, and follow it down the cañon until we come to the Western Kaibab Fault. We start on the north side of the river, and the Kaibab Plateau is on our right. At once we walk around a great amphitheater, the head of a side gulch, and then another, and another, until we come to a lateral cañon coming down the Kaibab, which has its beginning many miles back. Now we must head this. In doing so we must walk around the brink of a great amphitheater, the head of a side gulch, then another, and still another, until we come to a side cañon lateral to the one we are attempting to head, and around we must go. In doing so, still following the bench on the summit of the limestone, we pass around, in gentle curves, by many of these amphitheaters, and so on we go, everywhere traveling in half circles which are arranged about side cañons. At last we head the first side cañon and return to the brink of the Grand Cañon, at a point only a mile or two to the west of where we started, and so head side cañons with side cañons, all set with amphitheaters, and travel day by day, and must walk hundreds of miles to reach the western edge of the Kaibab Plateau, not more than thirty miles in a direct line from where we started. So this great bed of rock, a thousand feet in thickness, is elaborately carved into a series of amphitheaters.

Above this bed of limestone we have beds of bright red sandstones, weathered so as to form shelves on a scale even greater than in the rust-colored rocks below, but in many places they break down in steep slopes. Then above we have buff and gray sandstones and limestones heavily bedded, and near the summit, where the limestone prevails, they are full of nodules of chert. This cherty limestone weathers in columns, and towers, and pinnacles. Curious forms of standing rock are arranged all along the brink of the cañon wall.

So below we have granite buttresses, themselves set with pinnacles and towers, then broken slopes, then somber recesses, set with ragged shelves, then strangely carved and fretted slopes and lemon-colored shales, then vast amphitheaters of marble, then red slopes and sandstone shelves, then cliffs of ragged limestone set with towers.

The wonderful elaboration and diversity with which this work has been done is only equaled by the vast scale on which the plan was laid.

In many places the conditions of erosion have been such that great blocks have been severed from the main plateau, and stand as outlies, their sides having all the elaborate sculpture of the walls of the cañon. Lieutenant Ives, who explored the lower Colorado, made a land trip from a point below the Grand Cañon around to the southwest and climbed the San Francisco Plateau, and from an elevated point he could look off to the northeast and see the region of which we are now speaking. Of this country he says: "The extent and magnitude of the system of cañons in that direction is astounding. The plateau is cut into shreds by these gigantic chasms, and resembles a vast ruin. Belts of country, miles in width, have been swept away, leaving only isolated mountains standing in the gap—fissures so profound that the eye cannot penetrate their depths are separated by walls whose thickness one can almost span, and slender spires that seem tottering upon their base shoot up a thousand feet from vaults below."

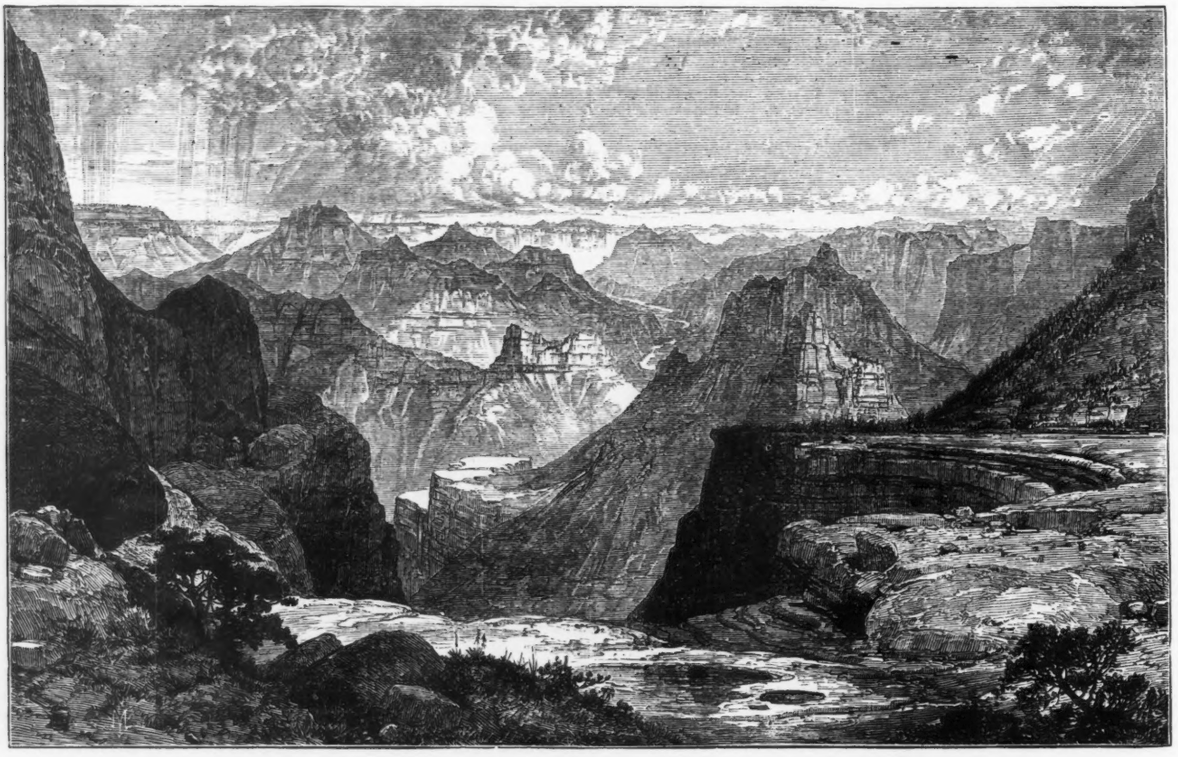


FIG. 36.—THE GRAND CANON OF THE COLORADO, SHOWING AMPHITHEATERS AND SCULPTURED BUTTES.

"In other regions the rocks, when not covered with soil or more vigorous vegetation, are at least lichened or stained, and the rocks themselves of somber hue, but in this region they are naked, and many of them brightly colored, as if painted by artist gods; not stained and daubed with inharmonious hues, but beautiful as flowers and gorgeous as the clouds. Such are the walls of the Grand Cañon of the Colorado where it divides the Twin Plateaus.

Having crossed the western Kaibab Fault, the cañon suddenly changes in character. The throw of the rocks being more than one thousand five hundred feet, we lose the granite, and the bed of the river is in the lemon-colored rocks; and now for many miles the cañon is comparatively straight, and the walls are much more regular. At the bottom we have the rusty beds, and then the lemon-colored beds, and then the marble cliffs, and when we reach the summit of this limestone we find the same bench as above under the Kaibab Plateau, but here it is wider, ranging from two or three hundred yards to two or three miles. Then comes a sloping bright-red terrace, and back of it the cliffs of the cherty limestone, with standing rocks on the brink.

You can stand on the southwestern corner of the Kaibab Plateau and look over this straight stretch of cañon for sixty miles. There seems to be a valley inclosed with walls 1,500 or 2,000 feet high, 5 to 10 miles in width, with a narrow, winding gorge down its center.

A few lateral cañons come in on either side: so the walls are broken here and there, but the general outline is well preserved.

Just before the river wheels again to the south, in the second great bend, it passes the To-ro-weap Fault, which extends across the cañon. The rocks have dropped down about eight hundred feet, and let the homogeneous limestone nearly down to the water. The fissure of this fault has been the channel through which floods of lava have been forced from depths below into the upper world.

* Extracts from Report of Major J. W. Powell on *The Exploration of the Colorado River of the West*, Washington, 1875.

Many volcanic cones are seen standing along the line of the fault or on the branches of the fissure. One of these volcanic cones stands on the very brink of the cañon.

Passing this, the course of the river is southward, and once more the channel enters the granite. At the very apex of this bend Diamond Creek makes its contribution from the south, and it was here that Lieutenant Ives and Dr. Newberry came down to the depths of the Grand Cañon. Turning here again to the north, the river soon passes out of the granite, and then at last, out of the cañon, where the Grand Wash comes down from the north. Around this second great bend the walls of the cañon have a more simple structure than in the first, but there are many points where views can be obtained of a simple gorge, much more impressive as such than in the complex region above.

LECTURES ON MINING.—No. LV.

By Prof. W. W. Smyth, M. A., F. R. S., Royal School of Mines, London.

LAWS RELATIVE TO THE PASSAGE OF AIR.

In considering the subject of ventilating there are several laws connected with gases, which have been established by physicists, and which it is necessary to bear in mind. There is, in the first place, Mariotte or Boyle's law, that the volume of a given weight of air is inversely proportional to the pressure on it, so long as the temperature remains unaltered; in other words, the density of a given quantity of air varies directly as the pressure on it. Then there is Gay Lussac's law—that if the pressure remains constant the increase of volume imparted to the air by heat is uniform and equal for each degree of heat. The laws regulating the passage of air through pipes and tubes, as we may consider on a large scale the airways of the mine to be, require to be very carefully attended to. [The lecturer recommended the careful study of a small book on ventilation by Mr. Atkinson, one of the Inspectors of coal mines, published a short time ago.] A great deal of importance is attached to the subject of the friction of the air on the sides of the passages, and this will depend very much on the nature of the material forming the sides, as to whether it is smooth or rough. We must remember how the air is pressing on the sides with a uniform pressure of about one ton to each square foot, and there being this amount of pressure, we have to consider the power necessary to overcome the resistance due to it. The amount of friction to be overcome, and therefore the amount of power it will be necessary to employ, must necessarily vary according to the variation of the area or the extent of the surface exposed to the friction. The friction varies directly as the length of the gallery or drift, and as the square of the velocity of the current. It is important to note this latter law, because so many persons constantly forget it, or are ignorant of it; a small increase in the velocity introduces a very much larger increase in the friction. Moreover, it should be borne in mind that where, from narrowness of levels or from other causes, the velocity has to be increased, this necessitates a very much greater increase of power in the ventilating machinery. Again, the friction increases inversely as the sectional area of the gallery—that is to say, as you increase the area you diminish the friction, and *vice versa*. With regard to the influence of the smoothness or roughness of the sides, some more precise information than we have is very desirable, but there can be no question that jagged and broken sides or roof interfere most materially with the efficiency of the ventilation, and entail a very considerable loss of power.

Another point is that concerning the perimeter of the air course, and the desirability of selecting such a form as will be most consistent with the diminution of the surface exposed to the moving air. For instance, a gallery 5 feet by 5 feet will give a perimeter of 20 feet, with an area of 25 square feet; while one 10 feet by 10 feet has a perimeter of 40 feet, and an area of 100 square feet; so that while the passage for the air has been increased fourfold, the exposed surface has only been doubled; so that, if it were convenient to use the latter size, the gain would be enormous in the course of a long run. A gallery 15 feet by 5 feet would have the same perimeter as that 10 feet square, with an area of only 75; so that, while the rubbing surfaces remained the same, the area is only three quarters as great; or, in other words, it would require only three quarters of the power to send a given amount of air through the 10 feet square level that it would require to send the same amount through the level 15 feet by 5 feet. Of course, the most advisable shape, if you could bring it into play, would be the circular, but as a rule we are restricted to squares and rectangles. These figures, however, show us that, in order to economize the power expended in ventilating, we should avoid small levels and passages, and have them as spacious as circumstances will allow. Another point of importance in practical ventilation is this—in galleries of equal section, and which differ only in their lengths, the volumes of the currents which will be obtained will be inversely as the square roots of the lengths. Thus, for example, if in one case the length of the air course was four miles, in another nine miles, the quantity of air we should get through would be as 3 to 2—that is to say, in the longer course we could only get two thirds of the air which we could get through the shorter.

All these laws relate in the most direct manner to the method of ventilation by which, since the time of Mr. Buddle, such large quantities of air have been got into the mines. In many smaller pits the old plan is still adhered to of taking one current round the whole length of the mine; or, as is, perhaps, more commonly done, splitting the intake air, and leading the two parts separately round the workings. In either case a large number of splits are needed. This method is by no means so satisfactory as the dividing the mine into panels, and taking off a separate and special branch of the intake to each panel. Care must be taken to have sufficiently large shaft power: two downcast shafts, and perhaps one large upcast, devoted exclusively to ventilation; or it may be two upcasts will be put in in large collieries. The air will be led first round the working of the bords, where perhaps open lights are being used, and then, after traversing more or fewer of the passages, backwards and forwards, between the bord workings and the pillar workings, will be supplied to the pillar workings, where safety-lamps are used, and will then pass away into the return, where it will be approached only by the officers. In case of an accident taking place in one panel, under this system, there is great chance of its being entirely confined to the district. However the ventilation may be arranged, one of the most serious points is that of the breaking down of crossings, or the leaving or forcing open of doors. It is constantly the case to find, on making enquiries after an explosion has occurred, that two-thirds of the men have been killed by suffocation, from the presence of after-damp and the derangement of the ventilation, and not from the direct effects of the explosion. Hence it becomes important to look very carefully to the strength and proper condition of all the parts on which the safety of the colliery depends. It is desirable to leave a wide margin between the pillar workings and the opening out of the bords in advance; from three to five pillars at least ought to intervene, and the air coming from the face of work should be made to pass between these successive sets, so as to introduce a long course between the pillar workings by lamps, and the workings of the bords probably by naked lights. This is necessary, because any heavy fall in the pillar districts tends to force back the air; and as great volumes of gas are liable to accompany these falls, it would be a most disastrous occurrence if this were forced back on the naked lights.

Many crude and unpractical methods are constantly being proposed to avoid accidents, or to provide means of safety—as, for instance, l ading the air down in iron pipes, or providing chambers kept filled with pure air for the men to rush to, etc. Another method has been often suggested as a precaution against the evil results which sometimes originate from the presence of a district of goaf, in which gas is likely to accumulate. It has been proposed to sink bore-holes into the goaf to relieve it of the gas; but it must be remembered that by so doing we might very likely tap large volumes of water, which has cost us many thousands of pounds in the shape of tubbing, etc., to keep out. Again, you have no guarantee that the tendency of the current will always be upward; it might be that these would become downcasts, and so carry the gas into the mine; or even supposing the air did pass up, there would be water dropping down, which would tend to force back the air; still further, as the goaf keeps breaking, the highest part of it may often vary so that bore-holes might be of little use, while the danger and expense of attempting to find out these highest parts where the gas would accumulate would be very great. The full isolating of the different panels, or districts, is a point of the highest importance, and to this it is that greater and greater attention will have to be paid. Instead of working so many small and independent areas, each by its own shaft, it will be necessary, as workings go deeper, more and more to work large areas together, and then this matter of properly isolating the district will be most important. When the air is split there will be a tendency for the greater volume to pass along the road which offers the shortest course, so that, unless the two courses be nicely balanced, it will be necessary to put in regulators, by means of which too large a supply to one district may be checked, and a larger volume thrown into another. One other point should be noticed—the risks which attend having two shafts close together; for in case of an explosion which destroyed the stoppings and doors between the two, the air would rush direct from the downcast to the upcast shaft, the whole of the colliery would be laid dead, and the men who were not killed by the explosion itself would have no opportunity of escape, but would necessarily die of suffocation. Therefore, it is desirable to have as great a distance as possible between the two shafts, that, whatever may occur, there will always be passages in which the current is kept up, and to which there will be a chance for the survivors to escape. Some strange effects occasionally follow these accidents; thus, the lecturer had seen one case himself where the ventilating current was reversed by the explosion, and all the smoke, etc., drawn back into the mine, where the air could be seen oscillating for a short time over the upcast, and then going bodily down. In this case every one in the mine was killed. Of course, still greater care is necessary where, instead of having two shafts, a bratticed shaft only can be employed at the outset of the workings. Several cases have occurred where the brattice has taken fire, and, of course, all ventilation entirely stopped. Hence it is necessary, if we are obliged to use such a shaft, to see that the brattice is made of the best fire-proof materials we can get. An experienced collier will be able to tell you, from the flame of his candle, what is the state of the ventilation; and a person who knows at what rate he walks can judge very approximately the rate of the ventilating current, by holding a candle in his hand and walking along, so that the flame is blown neither forward nor backward. A very common plan, however, is that of ascertaining how fast a small cloud of smoke from a candle wick, or from a flash of powder (where this is allowable), travels along, noting, for example, by the aid of a stop watch or minute glass, how long it takes to travel in a certain measured distance, or how far it travels in a certain time. Then if the level be m feet by n feet, and the velocity be v feet per minute, $m \times n \times v =$ the number of cubic feet passing through per minute. Several instruments, known as anemometers, have been devised for this purpose. About thirty years ago the first of these was proposed by Mr. Biram, and it is the one generally used at this day. It consists of a light wheel, with a number of vanes made of some light material (oiled silk, etc.), set at an angle, so that when the face of the wheel is placed in the current the wheel revolves. The instrument is so arranged that, for every two feet of air passing through, the wheel makes one revolution, and an arrangement of toothed wheels registers the number of revolutions made. These are made of various sizes, some of them such as to be conveniently carried about in the pocket when going through the mine. It may perhaps be said that, by placing these in the center of the level, you do not get the true amount, seeing that the air moves faster there than at the sides. Nevertheless, this will not affect the comparative results, and those are mainly what are required; so that, if the same instrument is always used under the same conditions, the amount will be given sufficiently close. A simple one was proposed by Professor J. Phillips, and improved by Mr. Dickinson, where the force of the current pushed out an arm with a vane attached, the amount of deflection being read off on a quadrant. Here is a smaller one, made by Casella, on much the same principle as Biram's, but so delicately poised that a mere movement of the hand is sufficient to set it rotating. There is one more instrument, the application of which is very much misunderstood—that is the simple water-gauge. If one of the arms of this be placed through a hole in a door or stopping connected with the return air, the difference of level of the liquid in the two arms will give the difference of pressure of the air in the two levels. Used alone, the air-gauge tells us very little, but as an auxiliary it may be of very great service. If, for example, it has been noted as standing at a certain height, and then it suddenly falls in the free arm, it will indicate that, through some cause or other, the current has been checked, that there is a drag, caused, it may be, by a fall from the roof, rendering the air in the return more rarefied.

The great use of dam doors in mines, in case of a fire breaking out, has been already mentioned; sometimes these have to be put in at the surface, but if the colliery is very shallow this may be of no use, and air will find its way down and feed the fire, and it may thus keep on burning for hundreds of years. In such a case the only method would be the flooding of the mine; but where the combustion is due to the decomposition of pyrites this will only make matters worse in the end. Another method, where the fire has not extended considerably, is that of forcing down carbonic acid, and Sir Goldsworthy Gurney undoubtedly deserves credit for the way in which he showed how this could readily be obtained from the small coal at the surface, and how it could be forced down by means of steam jets. In other cases the gas has been obtained by the action of sulphuric acid on limestone. Where a fire takes place in the ordinary workings, the matter is very serious; the only way, it appears, is to set the men as hastily as possible to cut out a large gap in the coal, and to fill this up with the most fire-proof material obtainable. If then pipes are put through and carbonic acid forced to play on the fire, the fire, if it cannot be put out, will at all events be checked.

AMERICAN INSTITUTE OF MINING ENGINEERS.

OCTOBER MEETING.

[OFFICIAL REPORT.]

(*Concluded from page 329.*)

THIRD SESSION.

The Third Session was held on Wednesday evening.

The President presented, on behalf of the Council, the following resolution for adoption:

Resolved, That the Museum Committee shall be empowered to make such disposition and installment of the mineral and metallurgical collections of the Institute as will, in its judgment, be best for the Institute, and for the preservation of the collections, provided that no expenditure of the funds of the Institute be incurred.

The resolution was unanimously adopted.

The President communicated to the Institute the following action of the Council:

Resolved, That a committee of three be appointed to consider and recommend amendments to the rules of the Institute, if any change therein is deemed advisable, relating—

1st. To the number and times of the general meetings of the Institute to be held in each year.

2d. To the arrangement of the order of reading, discussion, and publication of papers presented to the Institute, and of the exercises at the general meeting thereof.

The Committee shall report to the Council at the February meeting, so that notice of such amendments as the Council may approve may be given to the Institute at that time, in order that definite action thereon may be had at the annual meeting, May, 1878.

The President mentioned that it was the wish of the Council that members and associates would send to the Secretary their views on the subjects embodied in the resolution.

The following papers were then read:

On an Edgestone for grinding Analytical Samples; and, On a Jet Pump as a Filter Pump and a Blower. By Prof. R. H. Richards, of Boston, Mass.

The Eureka Lode, of Eureka, Eastern Nevada—the theory of its formation and the recent litigation. By W. S. Keyes, of San Francisco, Cal.

The Eureka-Richmond Case. By Dr. R. W. Raymond, of New York City.

The Ore Deposits in the Vicinity of Eureka, Nevada. By Prof. W. P. Blake, of New Haven, Conn.

FOURTH SESSION.

The Fourth, and concluding, Session was held on Thursday evening.

On the recommendation of the Council, Mr. Robt. W. Hall was changed from Associate to Member of the Institute.

The following resolutions, adopted by the Council, were then communicated to the Institute:

Whereas, On May 28th, 1877, the Scientific Publishing Company gave notice of its desire to discontinue the existing arrangement regarding the publication of the papers of the Institute,

Resolved, That the Institute gratefully acknowledges the important aid and service of its publication, THE ENGINEERING AND MINING JOURNAL, both within and beyond the terms of the contract.

Resolved, That the Institute accepts the notice of the Scientific Publishing Company, to take effect December 31st, 1877.

Resolved, That the Institute will not enter, at present, into an arrangement with any technical newspaper regarding publication.

Resolved, That the Secretary is hereby authorized to print the papers accepted by the Council for distribution to members, exchanges, and otherwise as authorized by the Committee on Publications, the said papers to be issued in pamphlet form, bearing the words "subject to revision," and that after such time for revision shall have elapsed, as the Committee on Publications may prescribe, the papers shall be published in the Transactions.

The Council reported progress on the matter referred to it for investigation at the Wilkes-Barre meeting.

The following papers were then read:

The Electrolytic Deposition of Copper. By N. S. Keith, of New York City.

The Goderich Salt Deposit. By Oswald J. Heinrich, of Goderich, Canada.

The Missing Ores of Iron. By Prof. P. Frazer, Jr., of Philadelphia.

What is a Pipe Vein? By Dr. R. W. Raymond, of New York City.

The following papers were read by title:

The New Dressing Works at Clausthal. By J. C. Randolph, of New York City.

The Cost of Boilers erected at the Edgar Thomson Steel Works during the years 1873, 1874, 1875.

Results of Analyses of Blast Furnace Gases. By C. A. Colton, of School of Mines, New York City.

The Stone Hill Copper Mine, Alabama. By R. P. Rothwell, of New York City.

On Accurate Measurements of Base Line for Triangulation with Steel Tapes. By Prof. H. S. Munroe, of School of Mines, of New York City.

The following resolution of thanks was passed:

Resolved, That the thanks of the Institute are hereby presented to the following gentlemen and companies for the kind and cordial receptions and excursions which they have provided:

First, and most heartily, to Mr. J. F. Lewis, who has conducted with rare ability the arrangements and excursions of the meeting through mines and works and over railways occupying a large territory, and has thereby contributed most largely to the success, profit, and pleasure of the meeting.

Also, to the citizens of Amenia for their cordial reception and entertainment; to the Manhattan Iron Company, represented by Mr. J. F. Lewis; to Messrs. Gridley & Son, proprietors of the Gridley mine and Wassaic Furnace, and to their mining superintendent, Mr. John M. Haskins; to the Borden Condensed Milk Company, represented by Mr. Noah Bishop and Mr. Miles K. Lewis, for their very acceptable entertainment; to Gen. Walter Phelps, manager of the Irondale Furnace of the Millerton Iron Company; to Mr. Frederick Miles, proprietor of the Copake Iron Works, for his cordial reception at his works, and also for transportation to Mount Washington and hospitable entertainment there; to Mr. George Williams, lessee of the Weed Ore Bed; to Mr. C. S. Maltby, proprietor of the Phœnix Furnace; to Mr. P. B. Evarts, president of the Ore Hill Mine at Ore Hill; to the iron mining companies of the Salisbury District; to the Barnum-Richardson Company and its superintendents and managers; to Mr. Rutledge Wilbur at the Amenia Mine, Col. Harlow P. Harris at the Chatfield Mine, and Mr. N. C. Ward at the East Canaan Furnaces; to Gov. A. H. Holley for his valuable historical address, and for his most pleasant reception at his residence; to Messrs. Coffing, Robbins, Burget & Kniffen, representing the Berkshire County Iron Works in Massachusetts; to the Richmond Iron Company for the interesting exhibit of its works and agreeable entertainment; to the New York & Harlem, the Connecticut Western, and the Housatonic Railroad companies for excursion trains, and to the Boston & Albany for permission to pass over its road.

The Institute then adjourned.

EXCURSIONS.

The excursions projected by the local committee, in which it had the hearty co-operation of the proprietors and managers of the mines and works, were admirably arranged and successfully carried out. The following is a concise list of the places visited:

Wednesday morning.—The Manhattan Mine, under the management of Mr. J. F. Lewis, was first inspected, conveyance by carriage being provided. The members were next taken to the Gail Borden Condensed Milk Works at Wassaic, where they were received by Mr. Noah Bishop and Mr. Miles K. Lewis. After inspection of the process the party was refreshed by a luncheon provided by the company. The Wassaic Furnace was then visited, under the guidance of Mr. N. H. Gridley and Mr. Ed. Gridley. After returning to Amenia, the mines in the immediate vicinity were visited, the Gridley Mine and the Amenia Mine—the former under the superintendence of Mr. John M. Haskins, and the latter of Mr. Rutledge Wilbur.

On Thursday morning the party left Amenia on special train on the Harlem Railroad, stopping first at Irondale, to visit the furnace of the Millerton Iron Company, under the courteous guidance of the manager, General Walter Phelps; thence to the Weed Ore Bed, at Boston Corners, Mr. George Williams, lessee; thence to the Copake Iron Works. Mr. Frederick Miles, the proprietor, after exhibiting his works and products, with generous hospitality conveyed the members in carriages, by way of Bashbish Falls to Mount Washington, where he had provided dinner for the party. After dinner Mount Everett was ascended and a grand view of surrounding country obtained. The party then returned by carriage and rail to Amenia.

On Friday morning the Institute went on the Harlem road to Millerton, where a special train was provided by the Connecticut Western Railroad. The Phœnix Furnace of Mr. C. S. Maltby, at Millerton, was first visited; thence to Ore Hill, where the Old Salisbury Mine was inspected; thence to the Chatfield Mine, owned by the Barnum-Richardson Company and the heirs of Holley & Coffing, where Col. Harlow P. Harris received the party with abundant cordiality; thence to Lakeville for dinner, opportunity being here offered to visit the extensive cutlery works of the Holley Manufacturing Company. After dinner the party, passing the Twin Lakes, visited the East Canaan Furnace of the Barnum-Richardson Company, under the guidance of W. C. W. Barnum and Mr. N. C. Ward; thence to Allen's Marble Quarry, Mr. Maxwell lessee, where marble was being quarried for the new State House at Hartford.

The party returned to Lakeville for the night, and were entertained by Gov. Holley at his residence in the evening.

On Saturday morning the party, strongly re-enforced in numbers by the ladies of Lakeville, took a special train on the Connecticut Western to Davis Ore Bed (Forbes Ore Bed Company); thence by special train on the Housatonic Railroad to the Falls of Fall Village; thence through Great Barrington to the Vandeuzenville furnace of the Richmond Iron Company; thence to the anthracite furnace of the Pomeroy Iron Works, at West Stockbridge, Mr. W. M. Kniffen general agent, who conducted the party through the works; thence to the Leet Mines, leased by the Richmond Iron Works, and the Hudson Iron Company's mine, Mr. R. Van Buskirk superintendent; thence to the State Line on the Boston and Albany Railroad, and to the Richmond Iron Company's Works at Richmond, Massachusetts.

After inspection of the works, the members assembled at the office of the company, where they were most cordially welcomed and hospitably entertained by Mr. J. H. Coffing on behalf of the Richmond Iron Company.

Passing over the Boston and Albany road to Pittsfield, where some of the members left for the East, the party continued down on the Housatonic Railroad to Canaan, connecting there with the Connecticut Western train for Millerton on the Harlem road, and thence to New York.

NOTES ON THE SALISBURY (CONN.) IRON MINES AND WORKS.*

By A. L. Holley, of New York City.

The three principal mines from which the celebrated Salisbury iron ores are obtained are called respectively the "Old Hill," "Davis," and "Chatfield" ore beds, and are situated in the town of Salisbury, Litchfield County, Conn., on the eastern slope of the Tocconuc range of hills.

The Old Hill ore bed is a tract of land of 100 acres, originally granted by the General Court in October, 1731, to be laid out by Daniel Bissell of Windsor. It was soon after surveyed and located by Ezekiel Ashley and John Pell. The descendants of Ashley are still proprietors in the mine. The supply of ore has been very abundant, and for many years was easily obtained, but latterly the cost of raising has been greatly increased. Up to about 1840 the average yield was estimated to be about 4,500 tons per annum. The production has gradually increased until the average yield at present is estimated at 15,000 tons annually. The largest production in any one year was about 20,000 tons. The proprietors of this mine were incorporated many years ago under the style of "The Salisbury Ore Bed Proprietors."

The Davis Ore Bed, named after an early owner, was originally called Hendricks Ore Bed, and was owned before the organization of the town of Salisbury by Thomas Lamb, one of the first settlers in the town. Ore was mined in this bed as early as 1730 or 1731, and was taken by Lamb to supply his forge at Lime Rock. It was in early days transported in leathern bags on horses. This mine has been worked almost constantly since first opened, showing an increased production. The average yearly yield at present is estimated to be about 15,000 tons. The property has passed through several ownerships; the proprietors are now incorporated under the name of Forbes Ore Bed Company.

The Chatfield ore bed was originally owned by Philip Chatfield, from whom it takes its name, and was opened soon after the other beds were. It has been steadily worked since first opened, showing also an increased production. Its annual yield at present is estimated to be 12,000 tons. Notwithstanding that these mines have been so long and so constantly worked, the supply of ore is still abundant and apparently inexhaustible.

There has been no special effort to increase the production, as these ores are not in the market, and it is only desired to raise a sufficient supply for the furnaces in the immediate vicinity of the mines. The ores are all of the brown hematite variety, and of the same general character, yielding about forty-five

* Read before the American Institute of Mining Engineers, at the Amenia meeting, October, 1877. The data from which the historical portion of these notes has been compiled were collected by the Barnum-Richardson Company, of Lime Rock (Salisbury), Conn.

per cent. of iron. The process of raising the ore and making it ready for the furnace has been much improved within the past twenty years; it is crushed and washed by machinery before leaving the mines. The ore is raised entirely by open mining, and the beds are now worked at a depth of from 75 to 100 feet. In addition to the mines mentioned above, the Barnum-Richardson Company is working mines at Amenia and at Mount Riga, both on the New York and Harlem Railroad, just over the New York State line, and on the western slope of the Tocconue Hills. These mines produce ores very similar in character and value to those already described.

The first forge in this vicinity was erected in Lime Rock by Thomas Lamb, as early as 1734. He took his ore from the Hendricks (now Davis) ore bed. Several different parties succeeded to the ownership; among those who occupied it longest, and operated it most successfully, were Messrs. Canfield & Robbins. They operated a forge and blast furnace on this site for many years, and also had a forge and blast furnace (built by Leman Bradley in 1812) on the Housatonic River, just below the Canadian Falls, using at both places Salisbury ores.

The Lime Rock property came into possession of its present owner in 1863, and in 1864 a new blast furnace was erected, which has been in operation up to the present time. About the year 1748 a forge was erected in the present village of Lakeville (then called Furnace Village), and in 1762 John Haseltine, Samuel Forbes, and Ethan Allan purchased the property, and built a blast furnace. This is supposed to be the first blast furnace built in the State. This property in 1768 came into the possession of Richard Smith, of Boston, who, being a Loyalist, returned to England upon the breaking out of the war. The State took possession of the works, and appointed Col. Joshua Porter their agent in its management, and upon orders of the Governor and Council large quantities of cannon, shot and shell were made during the Revolutionary War for the General Government. John Jay and Gouverneur Morris were often there superintending the casting and proving of the guns, and at this time the Salisbury iron gained a celebrity which it has never lost for superior strength and general quality. The cannon were intended chiefly for the navy, and after the war the navy, to a considerable extent, was supplied with guns made from the same iron. The ship of Commodore Truxton, the *Constellation*, and the celebrated *Constitution*, "Old Iron-Sides," were supplied with Salisbury cannon. The furnace was afterwards owned and operated for many years by Messrs. Holley & Coffing, who also operated a forge and furnace at Mount Riga.

The forge on Mount Riga was built about the year 1781 by Abner or Peter Woodin. Daniel Ball succeeded, and the works were for many years known as Ball's Forge. Seth King and John Kelsey commenced building a furnace there about 1806, but were not able to complete it, and in 1810 it came into possession of Messrs. Holley & Coffing, who the same year finished it, and for many years carried on an extensive business. Pig iron, anchors, screws, and various kinds of manufactured iron were made there. These works and those at Lakeville were abandoned many years ago, and the property at Mount Riga, including the water privilege, which is very valuable and one of the finest in the State, is now owned by the Barnum-Richardson Company, and used by it to supply water power in part to the furnaces and foundries at Lime Rock.

There were also built at East Canaan two blast furnaces for the manufacture of pig-iron from Salisbury ores, one about 1840 by Samuel Forbes, and one about 1847 by John A. Beckley.

The first foundry for the smelting of pig-iron was built at Lime Rock about the year 1830, and soon after came under control of Milo Barnum, who was the founder of the present Barnum-Richardson Company. He associated in the business Leonard Richardson, and within a few years his son, Wm. H. Barnum, was taken into the partnership.

The foundry business was carried on in a small way in connection with the store; their productions consisted chiefly of clock and sash weights, plow castings and other small work. The business gradually increased until about 1840, when they began the manufacture of railroad work, the first of which was chairs for the Boston & Albany Railroad, then building from Springfield to Albany; the castings were transported by teams to Springfield and to Chatham, a distance of about 50 miles.

The great tensile strength and natural chilling qualities of the Salisbury iron proved it of great value in the manufacture of cast chilled car wheels, which naturally followed in a few years the making of smaller railroad castings. The iron early obtained, and has since held, the reputation of being the best known for this purpose.

In 1868 the company obtained possession of the Beckley furnace at East Canaan, and in 1862 purchased the Forbes furnace at the same place. They also, about this time, purchased the foundry at 64 South Jefferson Street, Chicago, and organized a joint stock company under the name of the Barnum-Richardson Manufacturing Company for the continuance of the foundry business. In May, 1864, the Barnum-Richardson Company, a joint stock company, was organized with Wm. H. Barnum as president and general manager. It has since largely increased its works by building, and by acquiring further interests in mining and furnace companies. A third and improved furnace was built at East Canaan in 1872; in 1870 a second foundry was erected at Lime Rock. A new wheel foundry was built in Chicago in 1873.

The foundries at Chicago use the Salisbury iron, and have a capacity in the two shops of 300 wheels per day. The company uses, at its Lime Rock works, Salisbury iron also, and have a capacity of 200 wheels per day.

In 1840, there were in this vicinity four blast-furnaces in operation, each using an average of 600 bushels of charcoal and producing three tons of pig iron per day. There are now eight blast-furnaces owned by the company, of which Hon. Wm. H. Barnum is president and general manager. They use each an average of 1,200 bushels of charcoal, and produce 11 tons of iron per day. The new furnace at East Canaan at its last blast made an average of eighty tons of iron per week, this being the most advantageous blast known to have been made in a charcoal furnace of this size. The eight furnaces are located within a radius of eight miles from Lime Rock, and are situated as follows: three at East Canaan, one at Lime Rock, one at Millerton, one at Sharon Valley, one at Cornwall Bridge, and one at Huntsville. In connection with the latter furnace there is a car-wheel foundry at Jersey City, having a capacity of 150 wheels per day, and using the iron exclusively from this furnace. The Salisbury pig iron shows an average tensile strength of about 30,000 lbs. to the square inch, and, besides being valuable for ordnance and railroad purposes, it is extensively supplied for malleable and machinery uses. The wheels made at the Barnum-Richardson Works have been largely used in the United States, Canada, and foreign countries, particularly in South America. Their high quality is too extensively known and certified to require further mention in this paper.

The opening of the Connecticut Western Railroad has brought these mines and furnaces within easier access of each other, and has also enabled the furnace companies to procure a portion of their supply of charcoal from a distance, most of it being brought from Vermont.

REPORT OF EXPERTS ON THE LOWE GAS AT PHILADELPHIA.

PHILADELPHIA, May 11, 1877.

TO THE TRUSTEES OF THE PHILADELPHIA GAS WORKS:

GENTLEMEN—In accordance with a request made by Chief Engineer Thomas R. Brown, Esq., that we should examine the Lowe process for the manufacture of illuminating gas, as conducted in the works constructed by that company on the premises of the Manayunk Gas Works, test its illuminating power, and determine its chemical composition and its quality to resist low degrees of temperature, and report upon the same, and also upon any points of incidental importance that might present themselves during the investigation, with a view to the availability of said gas for city lighting purposes, either when used alone or when mixed with ordinary city gas as at present manufactured from coal, we beg to submit the following report:

With a view to render intelligible any remarks that may be made in connection with chemical actions supposed to take place in the operation, it is deemed by us proper to here append a wood-cut and description of the arrangement and process as given by the inventor.

The investigation which was submitted to us began Dec. 27th, 1876, and in its several directions has been pursued with many interruptions, owing to engrossing professional engagements, up to a recent date.

A great number of experiments have been made of a preliminary and comparative kind, having reference to methods of gas, analysis, etc. It has been thought by us best to omit reference to such, and to confine this communication for the most part to a report upon the facts bearing directly upon the question with the Gas Trust as to the availability of the Lowe gas as a substitute, in part or entirely, for the ordinary illuminating gas from coal.

The photometrical testing of the Lowe gas, as manufactured in their works at Manayunk, was conducted under four different modes of collecting it.

In the first instance, it was examined in the photometric room of the works, being drawn directly from the large gas-holder on the premises, and passed through the small meter to the standard burner.

In the second instance, owing to the large gas-holder having been made the recipient of both the ordinary coal gas and the Lowe gas, and it not being the object to examine a mixture of such, it was collected in two large rubber bags of five cubic feet each from the outlet of the meter of the Lowe Works, and conveyed to the laboratory of Prof. Rogers at the University of Pennsylvania, and from these bags transferred to a gasometer over water.

In the third instance, it was collected in two similar rubber bags to those just mentioned, by tapping the pipe leading from the purifiers to the large meter. These were taken to the establishment of Mr. W. W. Goodwin, and there the gas was transferred to a gasometer and experimented on.

In the fourth instance, a large tin gas holder of 20 cubic feet capacity was sent o the works at Manayunk. It was then filled with water and connected with the ube which was tapped into the pipe between the purifiers and meter of the orks. The water was then allowed to flow out and the gas to flow in. The pening of this holder was then soldered tight, and the vessel conveyed to Mr. Goodwin's establishment. For experimenting on the gas, portions were successively transferred to a small gasometer.

The production of gas from each charge varies between 4,000 and 6,000 cubic feet, and each operation at running, during which the gas is made, lasts 30 minutes. Dividing off the 30 minutes into periods of 5 minutes each, it is found that the *quantity* of gas produced is far greater during the earlier periods than the last ones, and that, on the other hand, the gas which comes over during the later intervals is *much richer* in illuminating materials than that which comes over during the earlier stages.

It was therefore a nice problem to so adjust the collection, either in the bags or the larger vessel sent to the Manayunk Works, as to secure a mixture that would represent accurately the average of its quality.

However, it is believed that with the precautions taken, no serious error has arisen from that source.

Yield of gas as observed by the meter for periods of 5 minutes each up to the close of the run, which in every case was of 30 minutes duration:

Thus, first run:

First	5 minutes	1,600	cubic feet.
Second	"	1,200	" "
Third	"	800	" "
Fourth	"	600	" "
Fifth	"	550	" "
Sixth	"	450	" "
Total yield		5,200	" "

Second run:

First	5 minutes	1,100	cubic feet.
Second	"	1,600	" "
Third	"	1,050	" "
Fourth	"	750	" "
Fifth	"	650	" "
Sixth	"	450	" "
Total yield		5,600	" "

Consumption of anthracite coal, 1st run.....284 pounds
" " crude petroleum, " " .....16 gallons
" " " " 2d " .....17 "

The following are the results of photometric examinations of the Lowe gas as taken by the different modes above alluded to:

Examination at Manayunk; gas drawn directly from gas holder: Average of 5 one-minute observations, 12·51 candles.

To obtain 16 candle light it was necessary to burn 7½ cubic feet.

Examination at laboratory of Prof. R. E. Rogers, University of Pennsylvania; gas taken from Manayunk works through large meter, and transferred to small gasometer from bags:

Average of 10 one-minute observations, normal temperature, 13·95 cgndles.
Average of 5 observations through coil at temperature 0, 12·16 candles.
Pressure, 0·85 inches.

Examination at the establishment of W. W. Goodwin, Esq., Filbert above Tenth Street; gas taken from pipe tapped between the purifiers and the large meter, and transferred to small gasometer from bags at Mr. Goodwin's:

Average of 10, one-minute observations, 14·45 candles.
Candle burning 120 grs.
15 hole "argand" burner; 7-inch chimney.
Pressure, 0·80 inches.

Examination at establishment of W. W. Goodwin, Esq., on the day after preceding experiments; gas of large vessel filled from pipe tapped between purifiers and large meter at Manayunk Lowe Gas Works:

Average of 21, one-minute observations, 15 candles.
Average on freezing same, at temperature 0, of 5 one-minute observations, 10.30 candles.
General average of all the observations, 13.48 candles.

With a view to test the effect of burning the Lowe gas with different burners, the following trials were made, with the results appended. At the time of the experiment the city gas gave, with a 15-hole "Sugg" 16 candle burner, 17·75 candles.

The Lowe gas with—

A 16 candle or 15 hole burner					Average,	12 candles.
A 16	"	" 24	"	"	"	12·5 "
A 14	"	" 21	"	"	"	10·5 "
A 19	"	" 27	"	"	"	9 "

Pressure at meter, 0·80 inches.
A "Sugg" bat-wing burner, 5 cubic feet per hour, and pressure 1½ inch = 3·5 candles.

It would thus appear that for the Lowe gas the 16-*candle burner is the best.*

From the above results it would appear that the Lowe gas, manufactured at Manayunk and supplied to us in the manner described, is inferior in illuminating power to that of the city gas as at present made from bituminous coal.

It should, however, be here stated that, since the Lowe gas owes its illuminating value (all other things being equal) to the amount of hydrocarbons it contains, derived from crude petroleum, it is in the power of the manufacturer to control within a wide range its quality by the use of a larger or smaller quantity of the oil.

The problem, therefore, of the ability of the Lowe gas to compete with or replace the ordinary coal gas, resolves itself into the question, whether the cost of petroleum may be such as to admit of its being used in such large quantities as to produce a gas so highly charged with hydrocarbons as to possess an illuminating power much beyond that found by us in the present instance.

Wishing to confine ourselves purely to the facts which have come within our observation, we will not undertake to say what may or may not be accomplished by any future experiments or improvements, upon the present mode of manipulation of manufacture of the Lowe gas.

Composition of the Lowe Gas.—Without entering upon the question whether this gas is of the variety known as "water gas," modified by a chemical reaction between such, and the petroleum vapor, the settlement of which would require an investigation not within the scope of our instructions, we here append the averages of several very carefully conducted analyses, and a comparison of the same with the city gas made from coal.

Analyses of Manayunk Gas, showing Wide Variations in Composition.—Lowe gas brought from gas-holder at Manayunk:

Hydrogen	42·86	Carbonic acid	·69
Marsh gas	44·28	Oxygen	·14
Olefiant gas	5.18	Nitrogen (estimated)	·56
Carbonic oxide	3.43	Ammonia, etc.	2·06
Sulphureted hydrogen	·80		
		Parts	100·00

Lowe gas taken from the pipe tapped between purifiers and large meter:

Hydrogen	64·66	Sulphureted hydrogen	·80
Marsh gas	24·73	Oxygen	·41
Olefiant gas	4·81	Nitrogen (estimated)	1·31
Carbonic oxide	2·72	Ammonia, etc.	·37
Carbonic acid	·19		
		Parts	100·00

Analysis of city gas for comparison:

Hydrogen	47·72	Sulphureted hydrogen	1·13
Marsh gas	38.53	Oxygen	·17
Olefiant gas	5·20	Nitrogen (estimated)	·85
Carbonic oxide	1·90	Ammonia, etc.	3·66
Carbonic acid	·94		
		Parts	100·00

All of which is submitted by, very respectfully, your obedient servants,

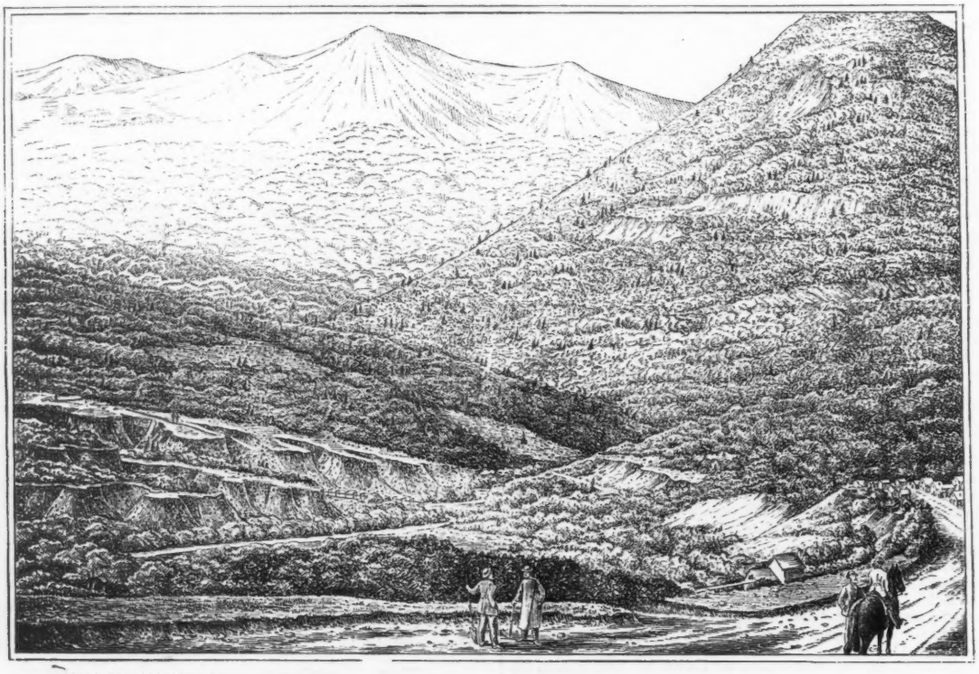
(Signed) R. E. ROGERS,
(Signed) LEMUEL STEVENS.

UPPER FRENCH GULCH.

[ILLUSTRATED.]

Staff Correspondence of the Engineering and Mining Journal.

In this issue of the JOURNAL we illustrate, from admirable sketches by General F. L. Vinton, two noted localities in Colorado, Wire Patch and Jeff Davis Patch, both being in French Gulch, a tributary of the Blue River. In the early day French Gulch, in point of gold dust yield, was the rival of Georgia and California Gulches, in the same range. At one time fully $1,500 per day was being taken from the banks and bed of the stream; the entire gulch prospected well to within a few miles of its head, and was claimed as far up its banks as water could be secured, and in many cases much farther. Lincoln City, located four miles above the mouth of the gulch, was then a town of considerable size and unbounded liveliness. In our sketch of Jeff Davis Patch, the remnant of the little village is seen on the right. To-day it appears as if nearly deserted, and in fact, for twelve years it has been very nearly abandoned; for, by 1865, the cream of the surface diggings had been taken out, and most of the miners had departed for Montana and elsewhere.



FRENCH GULCH, COLORADO.
Looking down from Lincoln City and showing Jeff Davis Patch.

For six to eight miles of its length, French Gulch cuts through an enormous overflow of trachytic porphyry, which here, as elsewhere in the valley of the Blue, has been the carrier of gold. The precious metal is found disseminated throughout this rock everywhere, and in places segregated in vugs and pockets. The porphyry is, however, too poor to be mined itself, but in its disintegration the bed and banks of the stream have been heavily enriched, forming the deposits which in the early day attracted the prospector, and subsequently rewarded his labor so munificently.

Jeff Davis Patch lies on the south side of the stream, four miles above its confluence with the Blue. It is estimated to have yielded, during the three or four years subsequent to its discovery, not less than 1½ million dollars in gold. It was worked in the very rudest manner, with the most primitive appliances, and under all the disadvantages caused by the division of the ground into little blocks among different owners. Moreover, only the lower part was worked at all, as the existing ditches did not bring water to any great altitude above the bed of the gulch. Consequently its tailing-piles can now be reworked at a high profit, and in addition there are large areas of rich ground as yet wholly untouched. In fact, the Patch is exactly in the same condition that all gulch diggings are when deserted by their first owners—by no means worked out, but rather improved; for it is now known where the poor ground lies as well as the rich, and nothing need be lost in useless work.

Wire Patch—so named on account of the character of the gold found there—was not explored in the early day except quite close to the bed of the creek, because of the scarcity of water. It is a very deep and very extensive deposit of gravel, lying on the north bank of French Gulch, about one mile above Lincoln City. The banks are in places 50 feet deep, and show the existence of at least two separate alluvial deposits. The ground prospects finely in the pan at every point, from the top of the ridge to the bottom, and will no doubt pay handsomely. The gold found is very coarse, and most frequently in the form of rough wires, though many heavy nuggets have been found.

These two properties, and a large area of creek claims around and above Lincoln City, have recently been consolidated under one management, and will hereafter be worked together. The organization controls the entire water of the gulch, and by a slight extension of the flumes and ditches now existing can bring water on almost any part of their ground in abundance. This will be done during the coming season. There are now two Little Giants on the ground, and next spring probably two more will be put in. Though the production of gold by the new company has so far been light, owing to the large amount of preparatory work necessary to be done, a great deal may be looked for next season, by which time much more ground will be in a condition to be worked.

MINING NEWS.

Staff Correspondence of the Engineering and Mining Journal.

COLORADO.

San Juan.—Our various exchanges from San Juan—the *La Plata Miner, Silver World, Ouray Times* and *Del Norte Prospector*—all give indications of the coming of winter among the rugged mountains of that district. The following notes we have condensed from these publications:

Burrow's Park.—Foundations for the new reduction works are completed. The machinery will probably not be on the ground till next summer. The American Eagle, Inverness, Great Mogul, Aberdeen, Clifton, Monitor, Highland and Inez are the most developed and promising mines of the district, and will be worked steadily through the winter. The O. K. Tunnel will also be steadily pushed ahead, night and day, during the cold weather.

The Ocean Wave reduction works are nearing completion. The process is lead smelting. The company has on hand about 500 tons of ore, and is receiving, from its own mines and others in the vicinity, about ten tons daily.

A new and very promising district is reported to have been discovered on the west fork of the Vallecito, a tributary of the San Juan. It is fifteen miles southward of Silverton. The ores are of silver. It is pleasantly named Needle Mount District.

The machinery for the Dow and Waters lixiviation works, in Cement Creek, has reached the Animas Valley, and may gain the end of its journey this fall; but as Cement Creek is itself a steep and rugged gorge, and the mines far up towards its head, it may be delayed till spring.

At Mineral City a strike of five feet of fine-looking ore is reported in the Maid of the Mist. The Red Cloud is one of the new mines that is looking finely. The Gypsy King and Flora Temple are also looking well. In the Mastodon adit a cross-run has been cut, showing a heavy streak of ore, from which assays gave as high as $1,500. The adit will be pushed ahead steadily during the winter, and work prosecuted also on all veins cut. The Young and Thunderbolt mines have suspended work during the winter, owing to the heavy snows. The Bonanza Tunnel is advancing steadily, and will be worked during the winter. It is expected that the Vermilion and Boston lodes will be cut before January. A blind lead has just been intersected in which rich ore is found.

The Van Gerson lixiviation works, which have been running so successfully during the summer, will probably have to close down during the winter, owing to a prospective failure in the ore supply.

General Colorado News.—A rich body of gold quartz has been encountered in the Furnald Lode Gilpin Company. This vein was discovered first in the Belden Tunnel.

The Collom smelting works at Golden are being refitted, preparatory to starting up again. Hereafter they will separate their own matte.

GENERAL WESTERN MINING INTELLIGENCE.

For more than two years the fate of White Pine District, Nevada, has rested almost wholly upon the pluck, faith, and financial ability of the Eberhardt & Aurora Mining Company, an English organization, which bought the famous deposit of silver ore at the time when the panic of Treasure Hill was in every one's mouth, and has, with some short interruptions, worked on it steadily ever since. The Eberhardt & Aurora claim contained, probably, the largest quantities of horn silver ever discovered on the continent; but, in common with all the mines at White Pine, became barren after awhile and were apparently exhausted. There was even much difficulty in following the deposit or vein downward, for the country rock was limestone, and the mines presented in their development all those phases of uncertainty which are common to deposits in this rock, and which are often too hastily concluded to be unfavorable indications. The English company persevered in the face of much discouragement. The main incline, or shaft, on the property was pushed down steadily, producing more or less low grade ore nearly all the time, and simultaneously a tunnel was begun at the base of the hill, and driven towards the line of the river. About a month ago we reported that after penetrating about 1,800 feet of hard, crystalline lime, in which no indications whatever of ore had been found, a change had occurred in the rock. It became softer and appeared as if partially acted upon by chemical agents. This was correctly regarded as a most encouraging development, and the work was pushed ahead with renewed vigor, and on the 25th of last month the energy and perseverance of the company were rewarded by the discovery of an ore-bearing stratum (practically the vein), which corresponds in appearance and character with the deposit above, and is undoubtedly a continuation thereof. Our Hamilton exchanges give no particulars of the value of the ore found, because the mineral belt had just been encountered, and no assays had been made. It is shown, however, beyond doubt, that the White Pine deposits extend to great depth, and the future of that camp may be now regarded as assured, even though no such enormously rich pockets be found below as on the surface.

The *Enterprise* places the daily expenses roll of the Comstock mines, exclusive of labor, milling, and repair, as follows: Timbering, $17,000; firewood, $6,000; candles, $300; quicksilver, $2,000, and ice, $1,000. The daily bullion product is now ranging between $130,000 and $150,000. During the month of September the official returns from the several paying mines on the vein gave a gross yield of $3,122,000. This amount is nearly one-half gold.

FRENCH GULCH, COLORADO.
Looking up from Lincoln City and showing Wire Patch.

Mr. C. A. Stedtfeldt, the well-known metallurgist, is making experiments at the Manhattan Mill, Austin, Nevada, with a view to perfect or improve the amalgamation department. This mill has for many years been one of the most uniformly successful and productive in the West. Its weekly shipments have averaged for a long time over $12,000 on silver alone, besides lead, and any contemplated improvements in its plant have undoubtedly been undertaken after much careful consideration.

Sulphur and borax mining have already become one of the established industries of the West. The Smith Brothers, of Boston, owning the great Borate of Soda Lake in Central Nevada, are now the largest producers and handlers of this commodity, we believe, in the world; and a large and powerful English company has taken hold of the McWortly sulphur deposit in the same State, and will make it an important and valuable property.

Silver Reef, the noted sandstone silver district of Utah, has developed beyond all expectation. Its mines are now producing from $3,000 to $5,000 in bullion weekly, and are rapidly attracting outside capital for their further development.

There has been no change of note recently in mining affairs at Silver City, Idaho. The Poorman, the great mine of the camp, is still idle, though there is much hope that it will soon be re-opened. The other well-known mines of Owyhee, the Potosi, Chariot, Empire, and Belle Peck, are slowly but surely emerging from the cloud which has hung over them for several years, and will probably be now worked without cessation. The Oro Fino Mine and Works were recently sold under judgment.

The owners of the Silver King Mine, Arizona, have, during the last year, been in the curious position of men who actually had more ore on hand than they knew what to do with; an ore that was so rich that it would bear the cost of

shipment to San Francisco, and yield, besides, a magnificent profit. In fact, so much ahead of transportation and milling facilities did the production become, that the manager found it necessary, a few months ago, to discharge half the force of miners, and employ most of those retained exclusively on dead work. It is not often that this circumstance occurs. The Silver King Mine has shipped several hundred tons of ore during the year, none of which was worth less than $1,000 per ton.

The delinquent bullion tax trouble at Virginia City, Nev., has at last been settled by a compromise between the municipal authorities and the Bonanza Mines, which practically amounts to a victory for the latter. The Consolidated Virginia and California has agreed to pay up, if the authorities rebate the penalty of delinquency, which offer has been accepted. The tax amounts in round numbers to $51,000.

Some heavy investments have recently been made in the Black Hills by California capitalists. It is rather unusual for the mining men of the Coast to go so far East for investments, when Nevada and the surrounding Territories offer such high inducements. The reports from the Black Hills have of late been of the most encouraging nature, and at the same time large quantities of gold have been produced, both from the placers and the rock mines.

The gravel mines of California will show somewhat better results this year than last, though, in fact, the yield of 1876 was no small figure. This branch of our mining industry is one that is susceptible of enormous advancement. Those who think the placer deposits of the Pacific coast are exhausted are in great error. The fact is that only the very rich surface deposits have been touched, and though these yielded in their day magnificently, the wealth of low grade gravel yet untouched and undiscovered far exceeds thatwhich has been taken out. The annual product of the California gravel mines is now about $17,000,000. As an instance of the richness of some of the claims under work, that of the North Bloomfield at Grass Valley is perhaps the best. This mine recently cleared up $63,000 from a 15 days' run.

The Idaho mine (quartz) at Grass Valley, Cal., will declare its one hundredth dividend in December, and expects to celebrate the circumstance with considerable vigor.

Latest advices regarding mining stocks represent the Californian market as still feverish, weak, and uncertain. The favorite Comstock securities are being deserted for outside stocks, and the bear interests have it all their own way. A few weeks ago there were symptoms of a favorable and permanent rise, but these have now wholly disappeared. Meanwhile the outside mines of the coast were never, as a rule, in so fine a condition, collectively and individually, as at the present, and it must be acknowledged that they fully deserve the confidence shown in them. The Comstock shares exception ; those of a few unimportant (as yet) mines appear to be in process of abandonment by all but the ring speculators.

CORRESPONDENCE.

STEELMAKING.

TO THE EDITOR : SIR—In the JOURNAL of October 20, article "Kraff and Sauve's Method of Steelmaking," is the following : "By this method Bessemer, Martin, or other metals, which may be regarded as compounds intermediate between the pig-iron, iron, and steel, are transformed into *fine steel*." The gentlemen named may deceive themselves, but no one else probably. It will not make *fine steel* ; it will only increase the carbon, but is no better steel. It is higher in carbon, and will make a steel better adapted for some use, but is no purer.

SYRACUSE, N. Y., Oct. 23, 1877. Yours truly, W. A. SWEET.

INDEX OF CURENT TECHNICAL LITERATURE.

EXCHANGES.

[In this department will be given abstracts of the more important original articles contained in current technical periodicals at home and abroad.]

The following gentlemen have kindly consented to assist in making the reviews of current technical periodicals :

JOHN RANDOLPH, Mining Engineer, New York.
Prof. TROWBRIDGE, School of Mines, Columbia College, New York.
Prof. H. S. MUNROE, " " " " "
Prof. T. EGLESTON, " " " " "
ARTHUR F. WENDT, Mining Engineer, New York.
MANSFIELD MERRIMAN, Yale Scientific School, New Haven, Connecticut.
FRANKLIN GUITERMAN, Mining Engineer, Cincinnati, Ohio.
Prof. P. de P. RICKETTS, Ph. D., School of Mines, New York.
Prof. E. A. FUERTES, Cornell University, Ithaca, New York.

Minero Mexicano, Mexico, Aug. 3.—A very interesting account of the ascent to the crater of the Volcano Reunion, by the Engineer Ch. Velain, while the volcano was nearly in active eruption. The full report of this perilous journey, probably, will be read before the Humboldt Society, or the Society of Geography and Statistics. E. A. F.

Revista Minera, Madrid, Oct. 1, 1877.—Hints to prevent accidents in mines, by the employment of a specially educated police, or resident overseers, under orders of the Government Mining Engineers. The latter are required to inspect all the mines in their districts at regular periods, receiving the reports of the resident official, and leaving with him the care of all needful institutions.

Oct. 17.—Description of the 70-ton steam hammer at the Creusot Works. E. A. F.

Annales des ponts et chaussees, Paris, August, 1877.—Note on the theory of the non-permanent motion of liquids, and on its application to the rising and falling of rivers, by Inspector-General Kleitz. (This "note" occupies 63 pages and is highly mathematical; it discusses the velocity of flood waves in rivers and canals; the interference of several such waves; the relative vertical and horizontal motions of the maximum and minimum points, etc. We regret that the author has not clearly stated the results given by his investigation.)....Note on the use of electro-semaphores for the perfection of the block system, by F. Clerault. (On the history of electric railway signaling in France, with full description of the apparatus; the conclusion is that the methods of Lartigue and Tesse have greatly benefited the railway system of France in permitting a quick circulation of trains with little liability to collision. This article also occupies 63 pages.)....On the strength of walls, which resist a pressure of water, by M. Pelletreau. (Treats of the best profiles for high masonry dams, taking into account the reaction of the sides of the valley.)....Chronicle. (This department of the *Annales* gives statistical engineering news, from which we extract the following: The number of vehicles passing each day at a given point on the Boulevard des Capucines is 19,043. The stone pavements of Paris embrace an area of 5,458,000 square meters; the macadamized pavements, 1,900,000 square meters, and the asphaltum pavements 225,120 square meters; the mean expense of repair, which was 1·08 francs per square meter in 1870, is now only 0·82 franc. The tramways of Constantinople have a length of 16 kilometers. The number of passengers transported in 1876 was 4,242,456, and the receipts were 803,201 francs. M. M.

Annales des ponts et chaussees, Paris, September, 1877.—Biographical notice of M. Charles LeJoindre. (M. LeJoindre was born in 1805, was an active and well-known engineer in railway and hydraulic constructions, and inspector-general of roads and bridges at his death in 1876.)....Note on the graphical determination of the bending moments in a simple girder resting on two supports, produced by the passage of a system of concentrated loads, by M. Bresse. (The method is already known to German and American students of graphical statics ; an interesting comparison is given of the results obtained by the drawing and by a rigorous calculation, from which it is shown that the greatest relative error of the graphic process does not exceed one-fortieth.)....Note on the block system and on methods for assuring safety upon single and double railway lines, by M. Sartiaux. (This arrives at the same conclusion as the paper by Clerault in the August *Annales*. In the old stage-coach times of France one traveler out of 335,000 was killed and one out of 30,000 wounded ; while in the forty years of railway experience, from 1835 to 1875, only one passenger out of 5,178,490 was killed and one in 580,450 wounded. Since 1872 this ratio has been very much diminished by the use of electric signals.)....Chronicle. (An account is given of experiments on the resistance to flexure of thin pieces of slate and marble.) M. M.

The Colliery Guardian, Oct. 19.—The Cleveland Iron Trade. (Change for the better increased consumption and decreased production).....On the Arctic Coal brought Home by the late Expedition, by T. Wills. (Paper read before the British Association containing analysis and description of).....Comparison of Mineral Statistics of 1866 and 1876. (The value of 6,500,000 tons of pig produced in 1876 was only £420,826 more than 2,800,000 tons produced in 1866).....The Warora Indian Coalfield. (Worked by the Indian Government.)....On the Reduction of Smoke, by Prof. O. Reynolds—paper read before the Manchester Scientific and Mechanical Society. A. F. W.

Engineering, Oct. 19.—The Pelican Mill, Col., by Thos. Egleston. (Description of Process in.)....Hirn's Thermodynamics—No. VIII....The Pennsylvania Railway, No. XVII. (Details of trucks and tenders for freight and passenger service.)....The Bethlehem Iron and Steel Works, description of, by A. L. Holley and Lenox Smith.....The Paris Exhibition, No. IV.....Electric Illumination. (Report by Prof. Tyndall on the relative merit of the Holmes, Alliance, Gramme and Siemens Machines).....Portable hoisting engine and boiler, constructed by Chapman and Sutton....The Protection of Metals by Oxides, by John Percy. (Paper read before the Iron and Steel Institute.)....Engineering Education in Japan. (Valedictory address to the engineering students of the Tokio Dai Gaku, by Prof. R. N. Smith.)....Railway Progress in 1876 (from the Board of Trade reports.)....Action of Screw Propellers. (Paper read before the Institute of Naval Architects, by James Howden.)....Strength of Boilers. (Paper read before the Institute of Naval Architects, by J. Milton. A. F. W.

ASSAY DEPARTMENT OF THE ENGINEERING AND MINING JOURNAL.

This department is opened for the benefit of miners, prospectors, and others interested in minerals.

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ANSWERS.

Denver Office :

ASSAYS.

The following assays are reported in dollars instead of ounces, as is our usual custom. They are based on the quotation of the metal on the day on which the report was made:

180. ROGERS, Gold Hill.—Gold, $6.20; silver, $132.36.
181. S. O. C., Denver.—Gold, trace; silver, $34.98.
182. B. J., Larkspur.—gold, none; silver, trace.
183. F. H., Denver.—No. 1. Silver, $132; lead, 0·7 per cent. No. 2. Silver, $40.80. No. 3. Gold, $10.34; silver, $3.
184. J. B., Denver.—Gold, trace; silver, $3.60.
185. L. D., San Juan.—Gold, trace; silver, $27.
186. J. H. S , Grant.—B. Silver, $302.40: copper, 4·31 per cent. C. Silver, $31.20; lead, 52·7 per cent.
187. E. G. W., San Juan.—Gold, none; silver, $2.40.
188. McR., Bear Creek.—Silver, $4.80; copper, 26·49 per cent.
189. E. E. G., San Juan—No. 1. Silver, $33. No. 2. Silver, $21.60. No. 3. Silver, $20.40.
190. B., Grant.—No. 1. Gold, $25.83; silver, $3.90; copper, trace. No. 2. Gold, $155.02; silver, $11.40; copper, 4·44 per cent. No. 3. Gold, $5.16; silver, $0.90.
191. P., Denver.—No. 1. Gold, $3.16; silver, $662.70; copper, 4.25 per cent. T lode. Gold, $6.20; silver, $32.28. No. 3. Gold, trace; silver, $275.40. No. 4. Gold, $5.16; silver, $24.60. No. 5. Gold, $56.84; silver, $24.90; copper, 12·80 per cent.
192. J. M. W., Idaho.—Gold, $24.82; silver, $15.10; lead, 10·30 per cent.
193. J. F., Morrison.—Gold, none; silver, $54.20; copper, 5·70 per cent.
194. F. H. B., Boulder.—Gold, $10.34; silver, $5.18.
195. W. P. L., Nederland.—Silver, $178.94.
196. T. W. C., Golden.—Sample No. 1. Gold, trace; silver, $78.20. Sample No. 2. Lead, 68 per cent.
197. J., Alma.—Gold, trace; silver, $284.70.

QUESTIONS AND ANSWERS.

198. ROSITA.—The specimen of rock you send us is silicious gangue mixed with talc. Do not think it will carry much if any precious metal.

199. M. S., South Park.—The hardness of the metal submitted for examination is caused by the great quantity of silver alloyed with the lead; nearly one-half its weight being silver.

200. M., Idaho.—Although we have made a great many tests for tin, have never yet succeeded in finding it. The mineral epidote is frequently mistaken for crystals of oxide of tin. We believe quicksilver has never been found in Colorado except in small quantities. In the Sunshine Mining District, Boulder County, quicksilver is found in the metallic state, but not in paying quantities.

201. C.—Artificial pearls are made of glass globules, lined with a solution made by digesting fish scales in ammonia. The Chinese pearls are made of a kind of gum and covered with the same liquid.

STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative Statement for the week ending Nov. 3, and years from Jan 1st.

Tons of 2,240 lb.	1877.		1876.	
	Week.	Year.	Week.	Year.
Wyoming Region.				
D. & H. Canal Co.	62,134	1,414,239	55,950	1,581,252
D. L. & W. RR. Co.	74,155	1,509,053	71,372	1,520,736
Penn. Coal Co.	39,036	841,407	34,362	888,058
L. V. RR. Co.	29,606	728,741	18,580	798,201
P. & N. Y. RR. Co.	1,707	36,143	972	19,668
C. RR. of N. J.	26,191	1,035,803	36,162	1,101,299
Penn. Canal Co.	16,656	296,617	14,648	362,112
	243,285	5,862,003	232,246	6,271,416
Lehigh Region.				
L. V. RR. Co.	68,778	2,823,374	92,152	2,980,299
C. RR. of N. J.	20,824	1,237,228	32,775	1,158,129
D. H. & W. B. RR.	1,762	25,987	708	36,701
	91,364	4,086,589	125,635	3,475,129
Schuylkill Region.				
P. & R. RR. Co.	131,458	5,710,035	155,062	4,000,686
Shamokin & Lykens Val.	15,818	606,539	4,970	782,773
	147,276	6,316,574	160,032	4,783,459
Sullivan Region.				
Sul. & Erie RR. Co.	289	17,037	253	28,698
Total	482,214	16,282,203	518,166	14 558,702
Increase	....	1,723,501	....	....
Decrease	35.952	....	....	....

The above table does not include the amount of coal consumed and sold at the mines, which is about five per cent of the whole production.

Receipts and shipments of coal at Chicago, Ill., for the week ending Nov. 3, and year from January 1:

	Week. Tons.	Year. Tons.
Receipts	45,308	1,402,100
Shipments	9,104	309,665

The Receipts of Coal at Rondout, N.Y., by the Delaware & Hudson Canal for the five days ending November 7 were 172 boats, carrying 24,275 tons.

The shipments of coal at Cleveland, Ohio, for the week ending Nov. 5 were as follows: shipped coastwise, 10,459 tons; total for year, 247,202 tons; foreign shipments, 815 tons; total for year, 73,604 Total of coastwise and foreign shipments for week, 11,268; for year, 320,806 tons.

The decrease of shipments of Cumberland Coal over the Cumberland Branch, and Cumberland and Pennsylvania, Railroads amounts to 123,449 tons, as compared with the corresponding period in 1876.

Perth Amboy business:	Tons.
Received for the week	22,230
Shipped for the week	23,398
On hand Nov. 3	110,705

The Exports of Coal from Baltimore for the week ending Nov. 3 were 397 tons, and since January 1st, 24,705 tons as against 22,589 tons for the corresponding period of 1876.

Shipments of coal at Pictou, N.S., for the week ending Nov. 3 and year from January 1:

	Week.	Year
To Canada	1,383	56,092
" United States	120	20,332
" Other Provinces	2'660	69 543
West Indies	....	1,626
Total tons	4,163	141,593

Receipts of Coal at Boston, for the week ending Nov. 2 and years from Jan. 1.

Tons of 2,240 lb.	1877.		1876.	
	Week.	Year.	Week.	Year.
From				
Alexandria and Georgetown	7,545	69,257	600	53,308
Philadelphia	13,950	586,488	24,933	501,961
Baltimore	5,012	136,156	5,838	131,570
Other places	7,700	215,570	8,730	250,677
Great Britain	....	11,037	....	4,839
Nova Scotia	1,175	36,636	1,760	22,558
Total	35,382	1,055,164	41.861	964,913

Coal Cleared on the Canals of the State of New York from Oct. 23 to Oct. 31 inclusive, and years since the opening of navigation:

Tons of 2,000 lb.	1877.		1876.	
	Week.	Year.	Week.	Year.
Anthracite	49,596	828,378	39,873	662,348
Bituminous	5,893	223,531	27,206	263,851
Total amount cleared	55.489	1 061,909	67,079	926,199
Of the above, there was cleared at tidewater ports, viz., New York, Albany, West Troy, and Waterford.	35,034	729,471	31,835	409,777
Cleared at internal ports	20.455	332,438	35,244	516,422

The production of Bituminous Coal for the week ending Nov. 3 was as follows:

Tons of 2,000 lb., except where otherwise designated.

Cumberland Region, Md.	Week. Tons.	Year. Tons.
Tons of 2,240 lb	43,128	1,320,635
Barclay Region, Pa.		
Barclay RR. tons of 2,240 lb	5,758	273,995
Broad Top Region, Pa.		
Huntingdon and Broad Top RR	2,726	115,209
*East Broad Top	1,168	41,897
Clearfield Region, Pa.		
*Snow Shoe	1,216	32,173
*Tyrone and Clearfield	26,970	1,100,890
Allegheny Region, Pa.		
*Pennsylvania RR	3,378	149,936
Pittsburg Region, Pa.		
*West Penn. RR	4,455	149,542
*Southwest Penn. RR	697	31 944
*Penn & Westmoreland gas coal, Pa. RR.	23,705	566,274
*Pennsylvania RR	11,459	308,729

* For the week ending Oct. 28.

The Production of Coke for the week ending Oct. 28.

Tons of 2,000 lb.	Week.	Year.
West Penn. RR	742	48,000
Southwest Penn. RR	13,552	512,593
Penn & Westmoreland Region, Penn. RR.	1,313	53,243
Pittsburg, Penn. RR	1,778	91,397
Total	17,385	704,143

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Nov. 9, 1877.

Anthracite.

Some offices report a very active trade, while others report a dull market. The former is, in most cases, the result of low prices. The approach of the close of navigation naturally makes, upon the whole, a fairly active trade; but it is evident, from the inclination to cut prices now, that but little encouragement is expected for the winter months. From the present outlook prices will be considerably lower during December and January; yet there are labor and other questions to be settled in some cases, and these, in the event of trouble, may strengthen the market somewhat, although there will still be more coal produced than will be required. Vessels and canal boats have become quite scarce, and freights have advanced, seriously interfering with the movement of coal.

"Will there be a combination next year?" is a question asked on every side, but no one appears to be able to answer it definitely. If there is to be one, the subject must be taken hold of vigorously at once, for not many weeks are left before contracts will be entered into for next year's business, and when this is done, another barrier will be added to the numerous almost, if not wholly, insurmountable ones that already exist. The subject is undoubtedly receiving more official discussion than it has for several months past; still the situation is practically the same as it has been almost ever since the late combination was dissolved; for there can be no question that if each of the companies could have had a combination after its own plan, and have had the share of the business they thought they were entitled to, there would have been no difficulty in fixing the matter; but, as a producer recently remarked, "it will be impossible to give six corporations each 30 per cent. of the whole." It would be quite possible for the companies to agree to a general proposition, but that would be but the beginning of trouble, for in the execution of any plan, even Mr. Gowen's "pooling" scheme, there is no possibility of obtaining a community of interest.

If the managers of our coal companies would devote as much time and attention to devising practical business-like measures for increasing trade and securing economy in every department of their affairs, that they do to concocting schemes for combination that violate the first principles of political economy, and that experience has over and over again shown to be, with rare exceptions, disastrous to the combiners themselves—they would better serve the interests of their stockholders and those of the trade at large.

The constant agitation of this combination bugoboo, and the assumed necessity for "war" between the companies when each new project is shown to be impracticable, keeps the whole trade in a ferment. Consumers are unwilling to lay in stocks; manufacturers are told a combination to advance prices will be formed, and the companies themselves waste their strength while grasping, like drowning men, at straws, instead of striking out boldly with what resources they still possess to reach the solid ground which alone can save them.

Relief to the coal trade is surely approaching—but not by combination. The low prices have greatly widened and stimulated our markets. The total capacity of our mines has considerably declined within the past two years, and the supply of labor in some of the fields is even now scarcely sufficient to supply the demand. Another year will considerably increase the market for coal, and will still further reduce our ability to produce it. So that in all probability the next year will see a natural increase in prices from the demand equalling the supply. There is no need, even now, for the depreciation in prices to their present point, for it would be more advantageous for the companies to stop their more expensive collieries and sell only such coal as they can get remuneration prices for than to continue this ruinous policy of "slaughtering" coal under the vain supposition that they are holding their own markets.

There is to-day no such a thing as owning a trade. The company, or dealer, that offers the coal the cheapest takes the market without regard to previous business connections, and it is simply folly making sacrifices which will sink the companies in irretrievable bankruptcy for the sake of a pure chimera. The part of wisdom will be to husband their resources, close the most costly collieries, and furnish what coal the market will take at the very lowest cost. It needs no combination to inaugurate this system, and if once adopted as a fixed policy the disturbing element in the trade would disappear and prices would improve. But, suggests one, "this would be admitting openly that our neighbor can mine coal cheaper than we do." So it would, but this is no time for wise men to imitate ostriches, which think that by hiding their heads in the sand they conceal their bodies. Every one knows that one must be able to produce cheaper than another; no two can have an exactly identical cost of production. Why not admit if necessary? The present policy cannot end otherwise than in utter bankruptcy to some of the companies and great injury to all.

The great Brazilian contract for rails and rolling stock just made by the Reading Road should be an immense assistance to that company, and is a source of gratification to every American.

The Schuylkill Co. collieries drawn to furnish prices of coal sold in October, to fix rate of wages to be paid in that month, make the following returns:

North Ashland Colliery, P. & R. C. & I. Co.,	$1 69
Kohinoor " R. Hecksher & Co..	1 61
Suffolk Coal Co.	1 56·39
Hammond Colliery, P. & R. C. & I. Co.	1 74
Wm. Penn Coal Co.	1 70

The average of these prices being $1.66·08, the rate of wages to be paid in October is twenty-eight per cent. below the $2.50 basis.

The Philadelphia and Reading Coal and Iron Co. has issued the following circular to the district superintendents:

POTTSVILLE, Nov. 2, 1877.—Please inform the employees of the Philadelphia and Reading Coal and Iron Company, in your respective districts, that in accordance with the implicit promise contained in my circular of October 2, the rate of wages for October will be twenty per cent. below the $2.50 basis.

HENRY PLEASANTS,
Chief Engineer.

The production of anthracite coal for the week ending Nov. 3 was 482,214 tons, as against 522,508 tons the previous week, and 518,166 tons for the corresponding week of last year. The total production from Jan. 1 has been 16,282,203 tons, as against 14,558,702 tons for the corresponding period of last year, showing an increase of 1,723,501 tons this year. The Wyoming region shows an improvement last week as compared with the previous one and the corresponding week of last year, while the Lehigh and Schuylkill regions show a falling off. The decline in the Lehigh region is accounted for by the refusal of the Lehigh Valley Railroad Co. to reduce its tolls sufficiently to enable the operators on its line to meet the market. The Reading Co. did not act quickly enough to prevent it loosing some business, but as it has made a special rate to meet the requirements of its individual operators its tonnage will probably show better for the remaining four weeks of its fiscal year. It now shows an increase in production of over 1,700,000 tons as compared with the like period of 1876, and is not likely to increase this amount much.

Bituminous.

There is nothing of importance to note in this description of coal. The Cumberland and Clearfield regions are doing a very fair business, but shipments from each will probably fall off from this time to the end of the year as vessels are becoming scarce and freights are advancing.

New York.

Wholesale Prices of Bituminous Coal.

Domestic Gas Coals.

Per ton of 2240 lb.	At the Shipping Ports.	Alongside in New York.
Westmoreland and Penn. at Greenwich, Philadelphia	$4 70	$5 50
" " at S. Amboy.	5 00	5 50
Kanawha at Richmond	4 10	5 40
Red Bank Cannel Pa. at Philadelphia	8 00	8 50
Youghiogheny, Waverly Co., at Balt.	4 50	5 65
Despard, West Va.	4 50	6 00
Murphy Run, West Va., at Baltimore	4 50	5 85
Fairmount, West Va., " "	4 40	5 70
Newburg Orrel, Md. " "	4 50	6 00
Cannelton Cannel, West Va.	....	10 00
" Splint " at Richmond.	6 00	7 00
" Gas Coal at Richmond	4 00	5 65
Peytona Cannel W. Va. at Richmond	....	10 00

Wholesale Prices of Anthracite Coal f. o. b. at the Tide Water Shipping Ports per ton of 2240lb.

Manufacturing and Steam Coals.

Cumberland at Georgetown and Alexandria, Va.	2 85@3 10	4 35@4 50
Cumberland, at Baltimore	3 10@3 25	4 35@4 50
Clearfield f. o. b. Canton, Baltimore	3 25@....	4 35@4 50

Clearfield "Eureka" and "Franklin" at mines per ton 2,000 lb. ..... 75c.; f.o.b. Baltimore and Philadelphia per ton of 2,240 lb., $3.25; f.o.b. South Amboy, $4.25; alongside at New York, $4.50.

Foreign Gas Coals.

	Sterling.	Am. cur'cy
Newcastle, at Newcastle-on-Tyne	8/6@10/6	5 50@6 00
Liverpool House Orrel, at Liverpool	25/	13 00
Ince Hall Cannel "	35/6	18 00
" Gas Cannel "	25/6	10@10 50
Scotch Gas Cannel, at Glasgow, nominal,	25/	7 50
	Gold.	
Block House, at Cow Bay, N. S.	1 75	4 50
Caledonia, at Port Caledonia	1 50	4 25
Glace Bay, at Glace Bay	1 60	4 25
Lingan, at Lingan Bay	1 75	....
International mines at Sydney	1 75	4 50
Pictou, Vale mines, at Pictou	2 00	4 70

	Lump.	Steamer.	Grate.	Egg.	Chestnut.	Stove.
Wyoming Coals.						
*Lackawanna at Rondout	2 65	2 65	2 65	2 80	3 05	3 10
†Pittston at Newb'g (A.S Swords)	2 70	2 70	2 70	2 80	2 80	3 00
‡Scranton at Hoboken	....	2 32	2 45	2 50	2 86	2 40
Wyoming at Amboy (L. V. C.Co.)	....	....	2 85	2 85	3 00	2 60
Wilkesbarre at Port Johnston	2 60	2 60	2 70	2 75	2 60	3 00
Kingston at Hoboken	2 50	2 50	2 65	2 70	2 60	3 00
Lehigh Coals.						
Sugar Loaf, at Hobok & Amb	3 50	....	2 85	2 85	2 60	3 00
Lehigh at Perth Amboy	3 50	....	2 85	2 85	2 60	3 00
Hazleton at Hoboken	3 50	....	2 85	2 85	2 60	3 00
Lehigh Coal Exchange	3 50	....	2 85	2 85	2 60	3 00
Mount Pleasant at Hoboken	3 50	....	2 85	2 85	2 60	3 00
Cross Creek at Port Johnston	....	....	2 85	2 85	2 60	3 00
Lehigh at Amboy (L. V. C. Co.)	3 50	....	2 82	2 85	3 00	2 60

* These prices are for the city and harbor of New York. For all points on North River and north of Rondout the price is 15 cents less.

† These prices are for the city and harbor of New York. For all points on North River and north of Newburg the price is 10 cents per ton less.

‡ These quotations represent the average prices of the last auction sale.

Boats towed by the D. & H. C. Co. at its expense to and from New York Harbor.

Per ton.

Freight from Hoboken and Weehawken to New York.....40c.
" " Elizabethport & Port Johnston to N. Y.....40c.
" " South Amboy to New York.....40c.

Freight by the boats of the companies from Hoboken, Port Johnston, Weehawken, South Amboy and Perth Amboy to New York City and vicinity 40c.

Retail Prices in New York.

Anthracite.

	Per 2000 lbs. Grate and Egg.	Stove.	Chestnut.
Pittston coal, delivered	$4 50	$4 50	$4 50
Lack. coal, delivered below 59th St.	4 00	4 00	4 00
*Wilkes-Barre, delivered	4 25	4 50	4 00
*Lehigh and Locust Mountain, del'd.	4 25	4 50	4 00

* These prices are for coal delivered below Canal Street The prices for coal delivered above that point are 50c. per ton more.

Bituminous.

Delivered, per ton of 2000 lb.

Liverpool House Orrel.	$18 00	American Orrel	$11 00
Liverpool House Cannel	18 00	Red Bank Cannel	7 00
American "	11 00	Cumberland	9 00
Cannelt'n Block, or splint	10 00		

Baltimore. Nov. 5, 1877.

Specially reported by Messrs. E. STABLER Jr., & Co.

Wholesale Prices per ton of 2,240 lb.

Hard White Ash.

AFLOAT BY CARGO.

Lump and Steamboat	$3 75	Stove	$3 75
Broken	3 75	Chestnut	3 50
Egg	3 75		

Shamokin, Free Burning White Ash.

Egg and Stove	$4 00	Chestnut	$3 75

From wharf or yard to the trade, 75c. per ton additional. In cars in dealers' yards or on switch, 15c. per ton additional

Lykens Valley Red Ash.

AFLOAT BY CARGO.		BY RAIL IN CARS.	
Broken	$4 08	Broken	$4 30
Egg	4 33	Egg	4 55
Stove	4 33	Stove	4 55
Chestnut	3 75	Chestnut	3 95

Boston. Nov. 3, 1877.

There is little that is new to report except the advance in freights, which always occur at the beginning of November. Coal freights from Philadelphia now rule at $1.45@1.50; Baltimore, $1.70@1.75; New York, $1.15@1.20; Alexandria and Georgetown, $1.75@1.80 per ton.

The market continues dull, and prices favor the buyer. The trade in Nova Scotia coal is about over for the season. The coal now being imported from Newcastle costs here $4@4.25 currency, the lowest prices ever known.

We quote Boston wholesale prices as follows:

Anthracite, broken	$4 00@4 25	Cannel, English	$16 00
do. egg	4 00@4 25	do. Buckeye	10 00
do. stove	4 25@4 50	Lingan	4 50
Cumberland	4 50@4 75	Pictou	4 75
Clearfield	4 25@4 50	Penn	6 00@6 10
Westmoreland	6 00@6 10	Youghiogheny	6 00@6 10
Caledonia	4 25		

—*Commercial Bulletin.*

Buffalo, N. Y. Nov. 7, 1877.

Specially reported by C. M. UNDERHILL.

The following are the prices of Lackawanna, Scranton, Henry Clay and Black Diamond coals, per ton of 2,000 lb. for Buffalo local trade for the present.

	To Dealers. F. O. B.	To Dealers. On car or boat.	To Dealers. In yard, screened.	To Consumers. Delivered at Retail.
Grate	$4 45	$3 95	$4 15	$5 20
Egg	4 45	3 95	4 15	5 20
Stove	4 70	4 20	4 40	5 45
Chestnut	4 60	4 10	4 30	5 35
Blossburg	4 00	3 85	4 35	5 00

Our yards are located as follows: Lackawanna coal at 667 Exchange Street, also at foot of Ohio street. Scranton, Henry Clay and Black Diamond coals at yard foot of Genesee street.

Chicago, Ill. Nov. 6, 1877.

Specially reported by Messrs. RENO & LITTLE.

Retail prices of coal delivered per ton of 2,000 lb.

Lackawanna Stove	$6 75	Erie and Brier Hill	$5 50
" Chestnut	6 75	Wilmington and Ill.	3 50@4 00
" Grate	6 75	Blossburgh	6 50
" Egg	6 50	Piedmont	7 50

Cincinnati, O. Nov. 8, 1877.

Specially reported by the Consolidated Coal and Mining Co.

	AFLOAT. Per bush. of 72 lb.	AFLOAT. Per ton 2,000 lb.	DELIVERED. Per bush. of 72 lb.	DELIVERED. Per ton 2 000 lb.
Youghiogheny lump	10c.	$2 78	12c.	....
" nut	8c.	2 22	10c.	....
" slack	4½c.	1 25	8c.	....
Camden, W. Va.	7c.	1 94	11c.	...
Peytona Cannel	13c.	3 71	18c.	....
Connellsville coke	...	3 60	10c.	....
Youghiogheny coke	5c.	2 64	8...	...

Anthracite per ton of 2,000 lb.

	Wholesale.	Retail.
Wilkes-Barre and Lackawanna (all sizes)	$5 50	7 00
Lehigh	6 50	7 50

Cleveland, O. Nov 8, 1877.

Specially reported by F. A. BATES, Esq.

Per ton of 2000 lbs. f. o. b. vessels.

WHOLESALE.

Brier Hill (Church Hill)	3 30
" " No. 2 Grades	3 10
Straitsville Lower Vein	2 75
Hocking Valley	2 75
Massillon [No. 2 grades 15 cents less)	2 75
Tuscarawas Valley	2 30
Columbiana	2 30
Nut coal, various grades	1 90@2 20
Screenings, " "	1 35@1 75
Youghiogheny gas coals	3 75

RETAIL TRADE.

	1 to 10 tons.	10 tons. upw'd.
Brier Hill lump	$4 00	$3 75
Massillon and Mineral Ridge lump	3 75	3 50
" " " nut	3 50	3 25
Straitsville Lower Vein, and Hocking lump	3 60	3 35
" " " " nut	3 40	3 15
Rich Hill lump	3 50	3 35
" " nut	3 25	3 00
Columbiana, lump	3 00	2 75
" nut	2 50	2 25
Lacka'a., Wilkesbarre and Pittston egg and grate,	6 10	5 85
" " " stove	6 25	6 00
" " " chestnut	6 25	6 00

Lehigh $1 00 per ton higher.

All sales to be strictly cash with order or C. O. D.

Hamilton, Ont. Nov. 8, 1877.

Specially reported by H. BARNARD.

Retail Prices, Delivered per ton of 2,000 lb.

Scr. or Wilkes-B. Grate	$5 00	Lehigh Lump	$6 00
" " Egg	5 00	Brier Hill	5 50
" " Stove	5 25	Massillon	4 50
" " Nut	5 25	Smithing	5 50

Louisville, Ky. Nov. 8, 1877.

Specially reported by Messrs. BYRNES & SPEED.

Wholesale per bushel of 72 lb.

P	11c.	Kentucky nut	8@9c.
Raymurg City	—	Kentucky	8c.

Retail per bushel of 72 lb.

Pittsburg	14c.	City Make Coke	9c.
Raymond City	13c.	Pine Hill	12c.
Indiana Cannel	17c.	Kentucky	10 to 11c

Anthracite $7.50 per ton of 2,000 lb.

Montreal. Nov. 8, 1877.

Specially reported by Messrs. ROBERT C. ADAMS & Co.

Wholesale per 2,240 lb.

Scotch Steam	$4 00	Cape Breton Steam	$3 25
Pictou	3 75	Newcastle Smith's	5 00

Anthracite at retail, per 2,000 lb. delivered.

Milwaukee, Wis. Oct. 30, 1877.

Specially reported by Messrs. R. P. ELMORE & Co.

Retail price per ton of 2,000 lb.

Anthracite, egg, chestnut, and stove			$6 50
Lehigh lump	$7 00	Connellsville coke on RR. track	$7 25
Briar Hill	$5 25	Straitsville	4 80

New Orleans, La. Nov. 1, 1877.

Specially reported by Messrs. C. A. MILTENBERGER & Co.

Coal on hand November 1: Pittsburg coal, 60 boats and 1 barge; St. Bernard coal. 3 boats. Consumption during October: Pittsburg coal, 34 boats and 4 barges. Arrivals during October, 8 boats from Donaldsonville, La.

The coal market has stiffened since onr last in consequence of the short stock on hand, about two months supply with no better prospects for fresh arrivals. We quote:

PITTSBURG COAL.

At wholesale (by boat load)	50c.	per bbl. of 180 lb.	
To steamboats	55c.	"	"
" manufactories	60c.	"	"
" families	75c.	"	"
In hhds. (for shipment)	$7 00	per hhd. from 5 to 6 bbls.	

ANTHRACITE COAL.

Per ton of 2,000 lb.

At wholesale	$7 00 to 8 00
" retail	10 00 to 11 00

VIRGINIA CANNEL COAL.

At retail	$1 25	per bbl. of 180 lb	

ST. BERNARD (KY.) COAL.

To steamboats	50c.	"	"
" families	70c.	"	"

Pittston, Pa. Nov. 5, 1877.

Pennsylvania Coal Company's Coal in yard, ton of 2000 lb.

Retail.

Lump, Egg and Stove	$2 25
Chestnut	2 00
Pea	1 00

Delivered, fifty cents per ton additional

Philadelphia. Nov. 8, 1877.

Specially Reported.

The trade here is but moderately active; the shipments are gradually decreasing. It was the general opinion that at least one and a half millions of tons would be wanted this year in excess of last year; it now appears that the market will not require such an increase. Perhaps a good deal of the present dullness if due to the timidity of buyers, who do not believe any more in the policy of carrying a large stock for winter use, fearing that the present cut-throat policy will continue through the winter. This disposition to run on a lighter stock is evident on all sides. Buyers are no more anxious for another such year as the one now drawing to a close than the producers. It seems to have benefited no one but the public; but getting coal cheap is one thing and getting it below cost is another. The losses now experienced on all sides must bring a reaction in some shape, and the advantage to the consumer may have been but a very temporary one.

Vessels are scarce, and rates ranging from $1.70 to $1.75 to Boston, according to sizes.

Richmond, Va. Nov. 8, 1877.

Specially reported by S. H. HAWES, Dealer in Coal.

Per ton of 2,240 lb., f. o. b.

Kanawha Cannel	$9 00	New River Bituminous	$3 70
Coalburg Splint	5 70	Clover Hill Coal	3 00
Lewiston "	5 70	Norwood Gas & Steam Coal	2 70
Kanawha Gas Coal	4 90		

San Francisco, Cal.

From the *Commercial Herald* of Nov. 1, 1877.

COAL—Imports from January 1 to Oct. 30:

	Tons.		Tons.
Anthracite	18,173	Vancouver Island	84,094
Australian	61,246	Rocky Mountain	123
Coos Bay	25,504	Saghalien	40
Cumberland	10,129	Seattle	88,167
English	75,645	Bellingham Bay	8,600
Chili	8,145	Ione, Cal.	2,718
Mt. Diablo,	68,698	Carbondale, Cal.	177

Receipts are large; the yards are all full and the market sluggish for most descriptions. Scotch, that sold some time since as low as $7.50, has rallied, and is now held at $8.50 for spot lots. The Pacific *Tribune* of a late date says that Seattle Coal can be sold at the dumps at $1.50 per ton. Freight here at $2.75@3 per ton. From this it would seem that even at the present low cargo rates of $6.50 there is a handsome profit left to the companies bringing it here to the market. British Columbia Coal by the cargo, paying 75 cents per ton duty, has been selling here for some time past at this low rate of $6.50, the quality of the coal being really superior. Judging from this no wonder that cargoes of Scotch and English Steam continue to rule so low. The receipts of coal during the week embrace the following: *Galatea*, from Liverpool, 1,900 tons; *Don Nicolas*, 1,570 tons Nanaimo; *Malay*, 1,150 tons Seattle; *California*, 1,420 tons Nanaimo; ship *Hamlet* 1,567 tons from Newcastle, N. S. W. The lot of 638 tons Scotch Splint per *Santona* has been sold at $8.37½. There is only one other cargo of this kind en route, and that has been sold to arrive on private terms. The steamer *Empire* has 800 tons Seattle, and the *Germania* from Bellingham Bay 1,375 tons.

St. Louis, Mo. Nov. 7, 1877.

Reported by JAS. J. SYLVESTER, Secretary of the Anthracite Coal Association.

Retail prices, delivered. Ton of 2,000 lb.

ANTHRACITE.			per ton.
Lackawanna	$8 00@8 50	Schuykill	8 00@8 50
Wilkes-Barre	8 00@8 50	Lehigh	9 00@9 50

BITUMINOUS.

Blossburg	9 00	Big Muddy	3 00
Pittsburg	4 50	Illinois Coals	2 50@3 00
Indiana Block	4 00	Connellsville Coke	6 50

Toledo, Ohio. Nov. 28, 1877.

Specially reported by Messrs. GOSLINE & BARBOUR.

We report prices of coal on cars at Toledo as follows:

Ton of 2,000 lb.

Straitsville lump	$2 70	Hocking Valley nut	2 30
" nut	2 30	Massillon lump	3 00
Shawnee lump	2 70	Cumberland	5 40
" nut	2 30	Blossburg	5 40
Hocking Valley lump	2 70		

Prices of hard coal on cars at Toledo are as follows:

Ton of 2,000 lb.

	Grate.	Egg.	Chestnut	Stove.
Pittston	$5 55	$5 55	$5 70	$5 80
Wilkes-Barre	5 55	5 55	5 70	5 80
Lackawanna	5 55	5 55	5 70	5 80
Lehigh	6 15	6 15	6 30	6 40

For retail delivery in city the prices are as follows: Stove and chestnut $6.45; grate and egg, $6.20 per ton; Lehigh, 60c. per ton additional.

Prices soft coal f. o. b. vessel for Lake shipments will be from 15 to 20c. per ton more than prices on cars.

Freights

Per ton of 2240 lb.
Representing the latest actual charters to Nov. 8, 1877.

PORTS.	From Philadelphia.	From Baltimore.	From Georgetown.	From Elizabethport, Port Johnson, South Amboy, Hoboken and Weehawken.
Augusta, Me.	....	....	....	2 25
Albany	....	....	....	....
Alexandria, Va	....	...	....	....
Brooklyn, N.Y.	....	....	....	...
Bangor, Me.	....	....	1 90	1 60
Bath, Me.	1 95	1 85	....	1 50
Baltimore	55	....	....	....
Boston, Mass.	160@180	1 85	1 90	1 50
Bridgeport, Ct.	....	1 55	1 70	70
Bristol, R. I.	....	....	1 70	90
Beverly, Mass.	....	.. ..	....	1 50
Cambridgeport, Mass.	1 60	..	....	1 50
Charlestown, Mass.	1 30	....	....	....
Danversport, Mass.	....	....	....	....
East Greenwich, R.I.	1 30	....	....	....
Fredericksburg, Va.	....	....	....	....
Fall River	....	....	1 70	90
Gloucester	....	....	....	....
Georgetown, D.C	....	.. ..	....	..
Hartford, Conn.	....	....	....	...
Hoboken	....	....	....	40
Hudson, N.Y.	....	....	....	..
Jersey City	....	....	1 50	40
Lynn, Mass	1 90	....	....	....
Medford, Mass.	....	.. ..	....	....
Middletown	....	....	....	90
Milton Mass	....	....	....	..
Nantucket, Mass	....	....	....	90
New Bedford	130@135	1 75	1 80	90
Newburyport	....	2 25	....	1 75
New Haven	.. ..	1 55	1 70	70
New London	...	1 60	1 70	70
Newport	....	.	....	90
New York	75	1 45	1 60	40
Newark, N J	....	....	....	...
Norwalk, Conn	...	1 65	..	....
Norwich	....	....	....	90
Pawtucket	135@140	.. ..	1 85	1 00
Philadelphia	...	....	....	...
Portland	170@180	....	1 90	1 50
Portsmouth, N. H.	1 80	2 25	2 10	1 65
Providence	....	1 60	1 70	90
Rockland, Mass.	....	....	...	...
Rockport	....	....	....	....
Richmond, Va.	....	....	....	....
Saco	....	....	...	1 75
Salem, Mass.	160@175	2 00	....	1 50
Saugus, Mass.	....	....	....	....
Savannah, Ga.	1 25	....	....	....
Somerset, Mass.	....	....	1 70	90
Troy	....	....	....	....
Wareham	....	....	....	....
Washington	70@75	....	....	.. ..
Wilmington, N.C.	1 50,	....	..	.. ..
Williamsburg, N. Y.	....	....	....	...

* And discharging and towing. † And discharging. ‡ And towing. § 8c per bridge extra.

Lake Freights on Coal.

Representing the latest actual charters to Nov. 5.

From Buffalo to Chicago	75@85
" " " Milwaukee	0.75
" " " Toledo, O.	0.50
" " " Marquette, Mich.	1.25
" " " Cleveland	0.30
" " " Detroit	0.25
From Cleveland to Chicago	0.50
" " " Milwaukee	0 50
" Oswego, N.Y., to Chicago	0.60
" " to Toledo	0.40
From Fair Haven, N. Y., to Milwaukee	1.20
" " " to Chicago	1.25
" Erie, Pa., to Chicago	75@80

Freights on Bituminous Coals from the Mines to Tide Water Shipping Ports.

From the Mines to Piedmont, Cumberland or State Line, 4c. per ton of 2,240 lb. per mile on distances less than 4 miles, and 3 cents per ton per mile on distances over 4 miles, and 2 cents per ton per mile on distances over 100 miles.

From Piedmont to Baltimore (206 miles), $1.85 per ton of 2,240lb., or $1.65 per net ton.

From Cumberland to Baltimore (178 miles), $1.54 per ton of 2.240 lb., or $1.37 per net ton (⅓ cent. per ton per mile for use of hoppers over C. & P. RR.).

From Cumberland to Georgetown (152 miles) by canal, 70c.@ 90c. Tolls 40c.

From Osceola to Greenwich, Phila. (say 248 miles, per T. & C. RR. per ton bituminous coal of 2.000 lb, less drawback. $1.90@ $2.15.

From Osceola to South Amboy, N.J. (317 miles), per 2,000 lb., $4.03, less drawback, $1.28; net rate per ton of 2,000 lb., $2.75; net rate per ton of 2,240 lb., $3.08; traushipment charges 20 cents additional.

Rates of Toll

For the above we refer to our issue Sept. 8.

For freights on *Lehigh and Wyoming Coal* we refer to our issue of Sept. 15.

For freights on *Schuylkill Coals* we refer to our issue of Nov. 3.

IRON MARKET REVIEW.

New York.

FRIDAY EVENING, Nov. 9, 1877.

American Pig.—There still continues to be much activity in the efforts to fill old contracts previous to the close of navigation, and this has the tendency to make prices very firm. Of new business, we only learn of sales, in small lots, aggregating 500 tons; of No. 1 Foundry at $19@$20, and 400 tons of No. 2, at $18@$19. After the close of navigation there will probably be a period of quietness which may result in a temporary weakening of prices. We quote No. 1 Foundry at $18@$19; No. 2 Foundry, $17@$18; and Forge, $16@$17.

Scotch Pig.—Business has only been in a small way. We note sales of 150 tons of Eglinton and 75 tons of Coltness on private terms. We quote Coltness at $26@$26.50; Glengarnock, $24.75@$22.50; and Eglinton, $24@$24.50.

Rails.—We note a sale of about 10,000 tons of Steel Rails, for Western delivery, at a price higher, in comparison, than some of the late sales. The large amount of work lately secured by some of the mills has had a stiffening effect on prices. There is still considerable business under negotiation. In Iron Rails the business is quiet, and generally confined to orders for small quantities or re-rolling. We quote Iron Rails at mills at $33@$37, and Steel at $43@$45.

A LARGE EXPORT CONTRACT.—The Philadelphia *Ledger* says: "For some time past efforts have been making to increase the trade of this port with Brazil, and the President of the Reading Railroad Company has been unremitting in his efforts to that end. We are just in receipt of a cable telegram from London announcing the execution of the contract there between 'the Madeira and Mamore Railroad Company,' limited, 'the National Bolivian Navigation Company,' and Messrs. P. & T. Collins, contractors, of this city, by which the latter agree to complete the graduation, masonry, and superstructure, and furnish the equipment of the railroad of the first named company. This road is projected from the present head of navigation on the Madeira river, a branch of the Amazon, in Brazil, to Bananeira Falls, on the Mamore river, on the borders of Bolivia, and is about 180 miles long, embracing the falls and rapids, which now render navigation impracticable. It is designed as a narrow gauge road, with iron rails of 45 pounds per yard, and will be used to transport the products of the Atlantic slopes of the Andes to the navigable waters of the Madeira river and thence down the Amazon. By an agreement with the contractors, the Philadelphia and Reading Coal and Iron Company will supply all the rails and other iron work and materials that will be required to construct and equip the road. This is a first and most important opening of trade between this port and Brazil. The payments to the contractors will be about three-quarters in cash, for which the money is now in hand, and the remainder in the debentures of the railway company, guaranteed by the Brazilian Government. The Philadelphia and Reading Coal and Iron Company will receive for the materials furnished, covering an amount of some five millions of dollars, the cash on shipment from the port of Philadelphia."

This is a move in the right direction, and should be followed by other companies. This is the true means of relieving the iron trade and disposing of the great surplus production of iron that must exist in Pennsylvania for several years to come. We cordially congratulate the managers of the Reading in this important achievement.

With iron rails selling in England at about $25 gold, it is incomprehensible to us why American rails should be taken at a higher figure, which must be the case if the Reading Company is to furnish them.

Old Rails.—In these we learn of no business, and quote, nominally, at $18 to $19.

Wrought Scrap.—This is very quiet, and quoted at $22.50 to $23.50.

Baltimore, Md. Nov. 5, 1877

Specially reported by Messrs. R. C. HOFFMAN & Co.

Baltimore Charcoal	$29@30	Mottled and White	$15@16 00
Virginia Charcoal	28@30	Charcoal C. B. Blooms	50@55 00
Anthracite No. 1	19@20	" " Billetts	55@60 00
" " 2	18@19	Refined Blooms	45@50 00
Anthracite No. 3	17@18		

Boston. Nov. 3, 1877.

Pig has continued in very fair demand, many founderies having hastened their purchases on account of the near close of navigation. We quote $21.50 for No. 1; $20 @20.50 for No. 2, and $19.50@20 for gray forge.—*Commercial Bulletin.*

Buffalo. Nov. 3, 1877.

Specially reported by PALEN & BURNS.

No. 1 Ex Foundry	$20 55
No. 2 "	19 55
Gray forge	18 55
American Scotch A 1 Foundry	24 00
Cherry Valley B 1 "	23 00
" " No. 2 "	22 00

Per gross ton 4 months delivery here.

Chattanooga, Tenn., Nov. 6, 1877.

Specially reported by J. F. JAMES, dealer in pig iron, ores, etc

Tenn., Ala. and Ga. Charcoal, No. 1 Foundry	$18 00@19 00
Tenn., Ala. and Ga. Charcoal, No. 2 Foundry	17 00@18 00
Tenn., Ala. and Ga. Charcoal, Gray Forge	15 00@16 00
Tenn., Ala. and Ga. Coke, No. 1 Foundry	19 00@20 00
Tenn., Ala. and Ga. Coke, No. 2 Foundry	17 00@18 00
Tenn., Ala. and Ga. Coke, Gray Forge	15 00@16 00
Charcoal or Coke, white and mottled	14 00@15 00
Tenn., Ala. and Ga. Cold Blast (car wheel)	22 00@28 00

Old rails	18 00@19 00	Wrought scrap,	
Old car wheels	16 00@17 00	No. 2	12 00
Wrought scrap,		Cast scrap	10 00
No. 1	17 00	Muck bar	32 00@33 00

Iron Ores.

Red Hematite (about 55 per cent. metallic iron) f. o. c. at mines	1 25
Brown Hematite (about 55 per cent. metallic iron)	1 75

Cleveland, O. Nov. 2, 1877.

Specially reported by Messrs. C. E. BINGHAM & Co.

Per gross ton, on four months' time. Subject to change in market. Discount for cash 4 per cent.

FOUNDRY IRON.

No. 1, L. S. Charcoal	$25 00	Am. S., No. 1, Ch Val.	$23 00
No. 2, " " "	25 00	" " B. 1, " "	22 00
No. 1, Anthracite	23 00	" " No. 2, " "	20 00
No. 2, "	21 00	No. 1, Massillon	23 00
No. 1, Bituminous	23 00	B—1, "	22 00
No. 2, "	21 00	No. 2, "	20 00

CAR WHEEL AND MALLEABLE IRON.

No. 3 L. S. Charcoal	26 00	No. 5 & 6, L. S. Charcoal	$27 00
No. 4, " " "	26 00		

BESSEMER IRON.

Nos. 1 & 2, L. S. Char.	$25 00		

FORGE IRON.

No. 1, Gray	$19 00	White and Mottled	$18 00

Cincinnati, O. Nov. 6. 1877.

Specia ly reported by Messrs. TRABER & AUBERY, commission merchants for the sale of pig iron, blooms, ore, etc.

Since our last our market has experenced a steady consumptive demand for pig iron, and prices have maintained their own. We continue to quote:

CHARCOAL.

Hanging Rock No. 1 Foundry and B 1	$23 00@23 50	—4 mos
" No. 2 "	22 00@	—4 mos
" Soft Silver Gray	21 00@22 00	—4 mos
" Mill	18 00@20 00	—4 mos
Tennessee, No. 1 Foundry	22 00@	—4 mos
" " 2 "	21 00@	—4 mos
" Mill,	18 00@19 00	—4 mos

STONE COAL.

Ohio, No. 1 Foundry	20 00@20 50	—4 mos
" " 2 "	19 00@19 50	—4 mos
" " 3 "	18 00@18 50	—4 mos
" Mill	17 00@18 00	—4 mos

COKE.

Ohio & W. Va. No. 1 Foundry	21 00@22 00	—4 mos
" " " 2 "	20 00@21 00	—4 mos
" " Mill	18 00@19 00	—4 mos

CAR-WHEEL.

Hanging Rock, C. B.	Hecla, Vesuvius, Jefferson, Etna.	40 00@	—4 mos
Maryland, "	Amherst & Cedar Pt.	37 00@	—4 mos
Missouri, "	Maramec	32 00@	—4 mos
Alabama, "	Woodstock	32 00@	—4 mos

BLOOMS.

Charcoal	45 00@50 00	—cash.

SCRAP IRON.

Cast	40c.@ 45c.	"
Wrought	62½c.@ 1 00	"

Louisville, Ky. Nov. 6, 1877.

Specially reported by Messrs. GEORGE H. HULL & Co.

Business not as active as at the same time last month, prospects good, however, for a large business this winter. No quotable change in prices. The usual time, four months, is allowed on the quotations below.

FOUNDRY IRONS.

No. 1 Hanging Rock, Charcoal	$23 00@24 00
No. 2 "	20 00@21 00
No. 1 Southern Charcoal	20 00@21 00
No. 2 "	19 00@20 00
No. 1 Hanging Rock, Stonecoal and Coke	20 00@22 00
No. 2 " " " "	19 00@20 00
No. 1 Southern Stonecoal and Coke	19 00@20 00
No. 2 " " " "	18 00@19 00
"American Scotch"	20 00@22 00
Silver Gray	18 00@19 00

MILL IRONS.

No. 1 Charcoal, Cold-short and Neutral	18 50@19 50
No. 1 Stonecoal and Coke, Cold-short and Neutral	18 00@18 50
No. 2 " " " " "	17 50@18 00
No. 1 Missouri and Indiana Red-short	21 00@22 00
White and Mottled, Cold-short and Neutral	15 00@16 00

CAR-WHEEL AND MALLEABLE IRON.

Hanging Rock, and Cold Blast	34 00@38 00
Alabama and Georgia "	26 00@33 00
Kentucky Cold-blast	25 00@33 00

Milwaukee, Wis. Nov. 6, 1877.

Specially reported by Messrs. R. P. ELMORE & Co.

Wholesale Price.

Charcoal Iron.

No. 1 Lake Superior per gross ton	$25 00—4 mos.
No. 2 " " "	24 00—4 mos.

Anthracite Iron.

No. 1 anthracite per gross ton	$25 00—4 mos.
No. 2 " " "	24000—4 mos.

Stone Coal & Coke.

Wholesale Price.

Warner's Am. Sc'th (Bk. Bend) per ton	$25 00@ —4 mos.
Soft Silvery per ton	22 00@23 00—4 mos.
Lake Superior and Lake Champlain ores	24 00@25 00—4 mos.
Sharpsville (Penn.) native ores	24 00@25 00—4 mos

Car Wheel.

LakeSuperior ores per ton	$25 00@27 00—4 mos

Montreal. Oct. 30, 1877.

Freights have advanced so much that pig iron is held considerably over last week's prices. We quote: Pig iron per ton, Gartsherrie, $20.75 to $21.25; Summerlee, $20 to $20.50; Eglinton, $19.25 to $19.75; Hematite, $26 to $27; American $20; Langloan, $20.50 to $21. Bars, per 100 lb., Scotch and Staffordshire, $1.85 to $1.95; best do., $2.15 to $2.20; Swedes and Norway, $4.50 to $5.00; Lowmoor and Bowling, 5.50 to 6.00.—*Monetary Times.*

Philadelphia, Pa.

[Weekly Report of the Philadelphia Iron Market, furnished for THE ENGINEERING AND MINING JOURNAL, by JUSTICE COX, Jr., & Co., Iron Merchants, 323 Walnut Street, Philadelphia, Week ending Nov. 8, 1877.]

PIG IRON.—The market for pig is reported firm, with an advancing tendency. Some companies are sold up for the balance of the month, whilst most good irons are sold as fast as can be produced at full quoted prices. We quote No. 1, $18 to $20; No. 2, $17 to $18; Gray Forge, $16 to $17.50.

MANUFACTURED IRON.—The demand for bars is better than for months, with a firmness in prices unknown for months. In Plate and Tank the enquiry continues good at full prices. Nothing new to report in Skelp. We quote Bars, 2c@2 1-10c; Plate and Tank, 2⅞c@6½c; per lb. Skelp, 2 1-10c@2¼c per lb.

RAILS.—The large sale of iron rails for South America has created quite a stir among the rail makers. The amount reported all the way from ten to twenty thousand tons. The sale of steel rails continues. We quote, Iron, $33@$36 at mill; Steel, $41@$43, all at mill.

OLD RAILS.—The demand for old rails is good, and full quoted prices are given for almost any rails. We quote $19.50@$20.

OLD WHEELS.—We quote $17@$19.

SCRAP—Wrought, $20@24; Cast, $12@$16.

MUCK BARS.—$33@$36.

Pittsburgh, Pa. Nov. 6, 1877.

Specially reported by A. H. CHILDS

	4 mos.		4 mos.
No. 1 F'dry	$21 00@22 00	Mottled&White	$16 50@18 00
" 2 "	20 00@21 00	Hot blast C'coal.	21 00@25 00
Gray Forge	18 00@20 50	Cold "	Western 38 00@40 00

Richmond, Va. Nov. 6, 1877.

Specially reported by ASA SNYDER, Esq.

There is a fair demand for all grades of pig iron at quotations. Our foundries continue busy. Stocks are very light.

Virginia Cold Blast Charcoal Pig Iron,	cold short	$20 to $26
" " " " " "	neutral	28 to 31
" Warm " " " "		20 to 25
" Anthracite	1 X	20 to 22
" "	2 X	19 to 21
" "	2	18 to 19
" " Coke West Va.	1 X	22 to 23
	X2	21 to 22

St. Louis, Mo. Nov. 6, 1877.

Specially reported by Messrs. SPOONER & COLLINS, Commission Agents for all kinds of Iron.

There is no perceptible change in the condition of our market. Trade continues good and prices remain firm at quotations. Our quotations are for standard brands of pig iron only.

COLD BLAST CHARCOAL—ALL NUMBERS.

Hanging Rock	25@38	Assorted Bar Iron $2, rates.	
Tennessee	26@30	No. 1 Wrought Scrap 80c. cwt.	
Kentucky	26@30	Heavy cast	65 "
Missouri	26@30	Light "	55 "
Georgia	26@30	Old rails	19 00 to 20 00
Alabama	26@30	Old car wheels.	17 00 to 18 00

	No. 1.	No. 2.	Mill.	White and Mottl'd.
Missouri stone coal	$22 00	$21 00	$20 00	19 00
" charcoal	22 00	21 00	20 00	20 00
Tennessee charcoal	22 50	21 00	20 00	19 00
Tenn. coke very soft and strong	23 00	21 00	20 00	18 50
Hanging Rock charcoal	25 00	24 00	23 00	
" " cold short	24 00	23 00		
	Ex No.1	No. 1.	B No. 1.	No. 2.
Alice Hanging Rock coke	$25 00	$24 50	$24 00	$22 50
Quinnimount, W.Va., coke	23 50	23 00	22 00	21 00

METALS.

NEW YORK, FRIDAY EVENING, Nov. 9, 1877.

Two of the articles of this list show a very good business, but the others are quiet.

Gold Cold.—During the week under review the price of gold has ranged from 103 to 102⅝, and closed at 102¾.

Bullion.—The London and New York markets have been very steady during the whole week. It is very dull here at 119, while London quotes 54⅞d. The market would go lower, but for the pending legislation in Congress. San Francisco quotes at 8 per cent. discount. Gold bars are quoted par to ¼ per cent. premium.

We give below a statement showing the amount of the latest bullion shipments, in addition to that announced in our issue of November 3:

Oct. 25	Northern Belle	Nevada		$4,963
"	Manhattan	"		11,339
"	Standard	"		40,162
October	Day	"		22,083
Oct. 27	Grand Prize	"		14,500
"	Alps	"		2,160
"	Arizona	"		1,900
October	Con Vir	"		645,731
"	California	"		981,000
"	Martin White	"		14,284
Oct. 31	Leopard	"		5,400
October	Emigrant	Cal'ia		1,600
Oct. 27	Modoc Con	"		3,727
"	Endowment	"		2,353
Oct. 31	Leeds	Utah		4,700

Daily Range of Silver in London and New York per oz

Date.	London. Pence	New York. Cents	Date.	London. Pence	New York. Cents
Nov. 3	54⅞	119	Nov 7	54⅞	119
" 5	54⅞	119	" 8	54⅞	119
" 6	54⅞	119	" 9	54⅞	119

The Legal Tender Dollar.—The silver bill known as Mr. Bland's bill, making the old silver dollar a full legal tender, and its issue to an unlimited amount, passed the House of Representatives on the 5th inst. by a vote of 163 yeas to 34 nays, 93 being absent or not voting. The following is the text of this bill:

"That there shall be coined at the several mints of the United States silver dollars of the weight 412½ grains Troy, of standard silver, as provided in the act of January 18th, 1837, on which there shall be the devices and superscriptions provided by said act; which coins, together with all silver dollars heretofore coined by the United States of like weight and fineness, shall be a legal tender at their nominal value for the debts and dues, public and private, except where otherwise provided by contract, and any owner of silver bullion may deposit the same at any United States coinage mint or assay office to be coined into such dollars for his benefit, upon the same terms and conditions as gold bullion is deposited for coinage under existing law.

"SEC. 2. All acts and parts of acts inconsistent with the provisions of this act are hereby repealed."

The Ophir Mine produced during the nine months ending with the 31st of August, 1877 (since which time it has produced no bullion), 8,946 tons of ore, valued at $182,834.27.

The Justice Mine produced for the quarter ending with September 30, $598,188.89 in bullion.

Copper.—We are reported sales aggregating 200,000 lb. at 17¾@17⅞c. for spot and early future, and 18c. for December delivery. For contracts for delivery from January to opening of navigation, 18½c. is asked, and but very little can be procured at that figure. At the Wallaroo sale this week, 200 tons of Burra Burra and 795 tons of Wallaroo copper was sold. The average of the sale was £74, and of Burra Burra £73 15s.

Tin.—The business of the past two weeks (100 tons of which was reported in our last) has been about 450 tons of Straits and Malacca tin, to arrive at 15⅝@15⅞c. Some of this business has undoubtedly been resales. On the spot there has only been a jobbing business. Straits in London is quoted at £70@£70 10s. and very firm. In Singapore the quotation is $20 per picul, with exchange at 4s. ⅛d. In this market the quotations are: Straits, 16¼c.; L. & F., 16@16¼c.; Refined, 16⅛@16⅜c., and Banca, 18c.; prices all in gold.

Tin Plates.—With a fair business, these are quoted, in gold, per box, as follows: Charcoal tins, $6.50@6.62½, and ternes, $6.12½; coke tins, $5.60@$5.70, and ternes, $5.50.

Messrs. Robt. Crooks & Co., of Liverpool, under date of Oct. 25, say of tin and terne plates:—"During the past week large sales of coke tins have been made, and low prices for prompt delivery in good brands are not now so rapidly obtainable. Ternes, both coke and charcoal, continue in quite good demand at rates last advised, while the weak spot is decidedly charcoal tins which, from the lowest to the highest qualities, have been left without buyers in spite of concessions offered by makers, both for prompt and forward delivery."

Lead.—A sale of 800 tons of lead on speculative account is reported at a private price. In addition to this several small lots have been sold at 4¾c., at which price further small quantities of Missouri lead are still obtainable. Nearly all the available lead is held at 5c. or over. The markets of China and Japan are attracting the very serious attention of the Pacific coast producers, and well they may, for it is reported that they can procure in those markets the equivalent of 5c. in New York, while if they were to continue sending lead here, as they were, even 4c. would hardly mark bottom. The shipments of pig lead from England to the East during the first nine months of this year were: To China, 10,999 tons; and to Japan, 1,434 tons; total, 12,433 tons, indicating an annual demand of about 16,000 tons. If only one-third of this business can be secured to the United States, it will help our market very materially, and the time will probably come when we shall absorb the whole of this Asiatic market.

Spelter and Zinc are in moderate demand, The former is held at 5¾@6c., and the latter at 7½c.

Antimony—This article continues in the same position it has held for several weeks. Cookson's is still quoted at 13¼c.@13½c. gold, and ordinary at 12¼c.

Quicksilver.—The *San Francisco Commercial* of Nov. 1, says:—There has been a moderate export requirement only during the past fortnight at 45c., at which rates all parties are willing sellers.

Our receipts of this article compare with 1876 as follows:

	1876—Flasks.	1877—Flasks.
Totals	55,596	60,337
Increase this year	9,741	

Our exports by sea for October, 1876-77, were as follows:

	1876 Flasks.	1876 Value.	1877 Flasks.	1877 Value.
Totals	4,108	$142,275	1,806	$64,796

Salt Lake Ore and Metal Market.

SALT LAKE CITY, UTAH, November 9, 1877.

The following quotations are nominal, and could undoubtedly be shaded under actual transactions:

Argentiferous Lead (Base Bullion).—$40@42 per ton for lead; $1.17@$1.18 per ounce for silver; $20 per ounce for gold. The quotations for silver are based upon the silver contents in the lead of 80 to 120 ounces per ton of 2,000 lb.

The shipments of ore and bullion for the week ending the 27th ult., are reported by our special correspondent as follows:

SHIPMENTS OF BULLION.

To Pennsylvania Lead Co.:				
Mingo S. Co.	7 cars,	149,646 lb.		
Telegraph "	7 cars,	147,409 "		
Waterman "	11 cars,	225,129 "		
Durell "	1 car,	21,328 "	543,512	lb.
To Hagan & Billing, N. Y.:				
Germania S. & R. Co., 2 cars,			42,026	"
To Omaha S. & R. Co.:				
Highland (Nev.) S. Co., 1 car,		21,546 "		
Germania S. & R. Co., 1 car,		20,879 "		
Durell S. Co.	2 cars,	42,717 "		
Queen S. Co.	4 cars,	84,632 "		
Deep Creek S. Co.	2 cars,	41,885 "		
Williams & Latey	1 car,	21,960 "	233,619	"
Total for the week, 39 cars.			819,157	lb.

SHIPMENTS OF ORE.

To Hilliard S. Co.:				
Flagstaff ore	9 cars,	190,295 lb.		
Frenchman "	1 car,	20,000 "	210,295	lb.
To Omaha S. & R. Co.:				
Alpha ore	1 car,	20,000 "		
Thayer Concentrated	2 cars,	44,250 "	64,250	"
To St. Louis S. & R. Co.:				
Mono ore	2 cars		39,004	"
	15 cars,		313,549	lb.

FINANCIAL.

New York Stocks.

NEW YORK, Friday Evening, November 9, 1877.

The number of shares of coal stocks sold during the past week is less than in any week for a long time. The only notable feature is a break which occurred in prices yesterday, followed by a steady decline, which was only checked in the latest transactions to-day. The cause of this decline is attributed to some "long" stock being thrown on the market. The situation of these stocks is a very unnatural one. Although the prospects of the coal carrying companies have been daily getting worse, the nominal market value of the stocks have been maintained by the clique now holding the market up. Outside capital is wisely holding aloof from this most dangerous market and is seeking investment in directions where the market value more closely represents actual value.

Delaware, Lackawanna and Western Railroad.—This stock has been fairly active during the week, the sales amounting to 51,665 shares, the quotations ranging from 51⅛ to 46, closed at 46⅞. The *New York Tribune* of to-day, in speaking of the weakness recently exhibited in this stock, says:

"The prospectus for the new $10,000,000 bonds of the Delaware, Lackawanna and Western Company reads as follows:

$2,820,100 are reserved for the payment of all outstanding mortgage bonds, thus making the consolidated mortgage a first and only lein upon the following property, viz.:

1. The entire line of railroad from the Delaware River to the New York State line, and from Scranton to Northumberland, in all 195 miles. Of this 122 miles are double track; and 115 miles are laid with steel rails of the best quality.

2. Also 93 miles of lateral and branch railroads to collieries, and side tracks, making with the main line an aggreagate equivalent of 410 miles of single track.

3. The mortgage also covers the equipment, depots, buildings, etc., and the company's extensive machine and car shops.

The property mortgaged, without including the rolling stock would cost, at present valuations, $30,000,000; the rolling stock comprises 153 locomotives, 52 passenger and baggage cars, 900 freight cars, and 14,846 coal cars, worth $5,000,000; total value of property mortgaged, $35,000,000.

"It will be observed that the mortgage to secure the bonds covers only the company's railroad, depots, etc., and rolling stock, 'which would cost, at present valuation, $35,000,000.' But by the company's last annual statement, the total cost of road and equipment, and "the cost of coal lands and improvements, together

with real estate and other permament property owned at various places," are given as $29,520,365—$5,480,000 less than the railroad and equipment are now valued at as a security. Even credulous persons will be tempted to ask, when was it possible to build a railroad at less cost than now?"

New Jersey Central Railroad.—The committee of stock and bondholders appointed some time ago to devise a plan for the re-organization of the Central Railroad Company of New Jersey—now in the hands of a receiver—have made public their long-awaited report. They propose the appointment of a purchasing committee, to consist of Messrs. Robert Lenox Kennedy, John S. Kennedy, John Edgar Johnson, and Theodore Dreier, of New York, and Edwin M. Lewis, of Philadelphia, to buy the road under a foreclosure sale, and organize a new company, which shall assume all the liabilities of the old, and be empowered to issue certificates of capital stock to the amount of $35,000,000, $14,000,000 preferred and $21,000,000 common stock. The old stockholders are to deposit the certificates they now hold with the Purchasing Committee, together with $10 cash for each share. For the $10 cash they are to receive in return preferred stock of the new company for an equal amount, and for the old stock 10 per cent. in preferred and 90 per cent. in common.

The Purchasing Committee, in the proposed plan, are also empowered to take such steps as in their judgment may seem necessary to reorganize the Lehigh & Wilkes-Barre Coal Company, now leased by the New Jersey Central Railroad, so that its property may be transferred to the railroad company; all stockholders of the former who agree to such transfer to receive in exchange for the certificates they hold preferred stock of the new railroad company to the amount of 50 per cent. of that surrendered, and 25 per cent. in common stock. The stockholders of the American Dock and Improvement Company, whose securities—amounting to $3,000,000—are guaranteed by the railroad are to receive the preferred stock in exchange for their own, dollar for dollar.

"The new preferred stockholders are to receive all the receipts of the road so long as these do not exceed 8 per cent. dividend per annum. After that point the profits are to be divided pro rata on the common stock, which, so long as the road does not pay 8 per cent. on both preferred and common, is to have no voice in the management.

This stock closes at 11¼, the extreme range in the quotations being 15@11¼; the sales amount to 2,970 shares.

Wasatch and Jordan Valley Railroad of Utah.—The coupons of the 9 per cent. gold bonds of this Co. will be paid upon presentation in New York. This road is about sixteen miles long and is used exclusively for carrying ores from the Little Cottonwood Mining District to Sandy Station on the Utah Southern Railroad.

Chesapeake and Delaware Canal Co.—A general meeting of this company will be held at its office on the 3 of December.

Miscellaneous Sales and Quotations.

Sales and quotations of the stocks and bonds dealt in here at Philadelphia, and Baltimore for the week ending the 9th inst. are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus †.

BONDS.

., L. & W.7s, Convt., 1892	J. & D.	—	—	102	—	
" " 2d mtge., 1881	M. & S.	—	—	105	—	
N. J. C., 1st mtge., new...	F. & A.	111½	—	—		$1,000
" " 1st mt., cons. 1899	Q.	68½	68⅛	67¼		3,000
" " Convt	M. & N.	64	63	02		9,000
L. & W. B. Coal Co., cons.	Q.	33¾	31½	27		6,000
Am. Dock & Imp. 7s.....	J. & J.	—	—	—		—
D. & H. C. Co., 1st m., 1884	J. & J.	99	98½	98½		17,000
" " " " 1891	J. & J.	101⅛	101	101		5,000
" " " " 1877	J. & J.	—	—	—		—
" " " " reg., 1894	A. & O.	—	—	96		
" " " " coup., 1894	A. & O.	96⅛	—	96½		3,000
St. L. I. M. & S., 1st mt. 1892	F. & A.	100	99¾	100		20,100
Ches. & Ohio, 1st mt., 1899	—	29¼	—	28		1,000
*L. V. RR., con. m. 6s, 1923	J. & D.	98	—	97		6,000
" " 2d m., 7s, 1910	M. & S.	113	—	112		3,000
" " reg., 1898	J. & D.	110¼	—	110		5,000
" " coup., 18 8	J. & D.	—	—	109		—
*P. RR., 1st mtge., 1880	J. & J.	106½	—	106		2,000
" Gen. mtge. reg., 1910	A. & O.	106½	—	106½		1,000
" Con. m. 6s. cou.. 1905	J. & D.	—	—	—		54,600
" " " reg. 1905	Q.	93	—	92¾		—
" gen. M. Coup., 1910	J. & J.	106½	—	106⅝		6,000
" New Loan 5s	—	108½	108	—		—
*P. & R. RR., 7s, 1893	A. & O.	—	—	110		300
" " con. m. 7s. cou. 1911	J. & D.	101½	—	101		1,000
" " Deb. 6s, 1893	J. & J.	—	—	—		—
" " New convt. 7s. 1893	J. & J.	57	—	57		—
" " Con. mtge. 7s. reg.	J. & D.	101¼	—	101		17,000
" " 6s, 44-80 1880	J. & J.	—	—	104½		1,000
*P. & R. C. & I. Co. Deb. 7s	M. & S.	—	—	—		1,100
*P. & R. C. & I. Co.....	—	*63	—	—		—
*L. C. & N. Co. 6s. 1884	M. & Q.	104	—	104		—
" " RR. loan 1897	F. & A.	103	—	102		—
" " Con. mtge. 7s.	J. & D.	—	—	—		—
" " Cvt. gold, 1894	M. & S.	—	—	—		—
" "Gold Loan, 1897	J. & D.	—	—	87		—
Schuylkill Nav., 6s. 1897	M & Q	—	—	—		—
Pa. and N. Y. Canal, 7s.	J. & D.	—	—	111		—
Pa. Canal Co.....	J. & J.	—	—	—		—
Susquehanna Coal Co. 6s.	—	—	—	—		—
†Ches. & Ohio 1st m. 6s.	M. & N.	—	—	—		—
†Balt. & Ohio 6s. 1880....	J. & J.	104½	104	—		2,000
† " " 6s. 1885.....	A. & O.	104	103¾	—		3,500

Total transactions for the week.....$175,500

* $3,700 Walker Tract.
7,000 Glentworth Tract.
6,000 Helfenstein "
1,000 Big Schall "

STOCKS.

	Quotations. High-est.	Low-est.	Clos-ing.	Sales Shares
American Coal Co.....	—	—	35	—
*Cambria Iron Co.....	—	—	50	30
*Pennsylvania Salt Manf'g Co.	—	—	64	—
*Westmoreland Coal Co.....	—	—	62	—
*Buck Mountain Coal Co.....	—	—	25	—
*Schuylkill Nav. Co	—	—	—	—
St. Louis, I. M. & S. RR. Co..	7¼	7	8	200
Spring Mountain Coal Co.....	—	—	30	—
†Balt. & Ohio RR. Co. pref..*	—	—	—	30
" " " common	—	—	103	—
†Pittsburg & Connellsville RR.	—	—	—	—
†George's Creek Coal Co.....	—	—	99	—
†Santa Clara Mining Co.....	—	—	8¼	—
†Atlantic Coal Co.....	—	—	1.40	500

Philadelphia Stocks.

PHILADELPHIA, Friday Evening, Nov. 9, 1877.

The business in this market has been very quiet, with an inclination to weakness on the part of all of the stocks, notably, however, Lehigh Coal and Navigation Co., which has declined from 18 at the opening on the 3rd inst. to 16¼ at the close to-day.

Allentown Iron Co.—An adjourned meeting of the stockholders of this company will be held on the 15th inst.

Catawissa Railroad Co.—This company has declared a dividend of 3½ per cent.

AUCTION SALES OF STOCKS AND BONDS.—During the week the following stocks and bonds were sold at auction:

Pennsylvania Salt Manufacturing Co.—281 shares, at $64@64.25 per share.

Schuylkill Navigation Co.—$5,000 of the 6 per cent. bonds, due 1895, J. & J., at 52 per cent.

Sellers' Manufacturing Co. of Philadelphia.— 51 shares, par $50, at $6 per share.

Catawissa Railroad Co.—$2,000 of the new 7 per cent. bonds, due 1900, F. & A., at 103 per cent.

Salem Coal Co. of Pennsylvania.—1,000 shares, par $10, at $12.50 for the lot.

Mingo Oil Co.—1,400 shares, par $10, at $7 for the lot.

New Empire Iron and Petroleum Co.—9,000 shares, par $1, at $15 for the lot.

Hibberd Oil Co.—1,234 shares, at $5 per share, $5 for the lot.

Slippery Rock Petroleum Oil Co.—1,250 shares, at $25 for the lot.

Oil Valley Petroleum Co.—433 shares, at $4.33 for the lot.

Petroleum Storage Co. of Philadelphia.—13 shares par, $50@$7.50 for the lot.

Duquesne Oil Co. of W. Virginia.—1,000 shares, at $10 for the lot.

Joliet Iron & Steel Co. of Illinois.—21 shares, at $1.89 for the lot.

Midvale Steel Works of Philadelphia.—117 shares, at $2.93 for the lot.

Pittsburgh, Cincinnati & St. Louis Railroad Co.—8 shares preferred stock par, at $50@$2 per share.

Alleghany Railroad & Coal Co.—287 shares par, at $25@$8.61 for the lot.

Susquehanna & Wyoming Valley Railroad & Coal Co.—$10,000 of the first mortgage bonds for $2,000.

Chesapeake & Ohio Railroad Co.—$3,000 of the first mortgage 6 per cent. gold bonds, due 1899, coupons from May, 1873, attached, at 29 per cent.

Niagra Oil Co.—The annual meeting of this company will be held on the 12th inst.

Ocean Oil Co.—The annual meeting of this company will be held on the 13th inst.

Philadelphia Coal Co.—The annual meeting of this company will be held November 12.

Copper Stocks.

Reported by Wilson W. Fay & Co., Bankers and Brokers Room 7, Traveler Building, 31 State Street.

BOSTON, THURSDAY EVENING, Nov. 8, 1877.

In reviewing and samming up the transactions for the week, we find that this, without exception, has been the dullest and most quiet one for six months, and it is a fact that cannot be concealed that business and interest in copper stocks is slowly and surely degenerating; and yet there appears to be no special reason for the apathy shown but the low price of ingot copper and the general dull times.

Calumet & Hecla has been quiet, with few sales, and closes weak at $170@$172.

Copper Falls remains unchanged at 3.00 bid and 3¼ asked.

Franklin is looking a little better, although the price has not changed, there being more bidders and fewer sellers. It remains 6@6.50.

Nothing new on National. It closes at .10@.15.

Quincey remains about as it was at the close last week, 37.50@38.50.

No change and nothing of interest in the other stocks.

The silver stocks have had decidedly the most trade and are far ahead of the coppers in amount and transactions.

Duncan has sold at 1⅝@1½@1¾, and as low 1¼ but closes strong at 1¼ bid and 1½ asked.

International has sold at .27½ and also closes strong at .25 bid and .28 asked.

Gold and Silver Stocks.

NEW YORK, Friday Evening, Nov. 9, 1877.

The inclination to invest in mining properties is making considerable headway, being decidedly more observable than three months ago. Although the business of the Mining Exchange is not large, yet the number of genuine sales is steadily increasing. Moose has held the first position in the transactions of the week, and has shown but very little fluctuation. American followed with sales of 9,700 shares at 4 to 4⅛. The dealings in Bertha & Edith have aggregated 8,500 shares, opening at 8c., on the 3d inst., and closing at 4c. to-day. Nearly one-half of the business of the week has been in stocks ranging in price below 32c. per share.

The Ontario Silver Mining Co—has declared its regular dividend for October of $50,000, gold, and two extra dividends of $50,000, gold, each, all three payable on the 15th inst. In dividends to stockholders the company has paid since February last, including those just declared, $700,000 in gold, and there was a balance on hand Oct. 1st of over $260,000. The total production of the mines during 25 working days in October was $165,916.75. The stock of this company closes at 24¾ per share, being a slight advance on the quotation of a week ago. The sales for the week reach 1,775 shares.

Eureka Consolidated Silver Mining Company.—The *Eureka Sentinel* says: "This mine is yielding 1,500 tons of ore per week, and that quantity could be increased indefinitely, if required. Although the upper levels show no abatement in their usual output, and are looking as well, if not better, than when the ore bodies were first struck, the main interest centers on the bonanza on the tenth level, and all calculations as to the richness and future value of the property are based on the probable extent and dimensions of the deposit at that point. From the estimates made on that portion already opened by the main drifts, upraises, winzes, and crosscuts, by careful and competent experts, the company are assured that there will be no dimunition in the outflow of bullion for at least a year to come. Taking last month's business as a standard, it is calculated that the bullion yield in that period will amount to $3,500,000, of which amount $1,800,000 will find its way, in the shape of dividends, into the pockets of the fortunate stockholders, and the balance will be paid out in Eureka for work, supplies, etc. It is a wonderful mine, and has very few rivals on this coast." The sales of this stock for the week aggregate 1.775 shares at from 21¾ to 23⅝, closing at 23⅝.

MINING STOCK QUOTATIONS IN SAN FRANCISCO.

We give below a table showing the closing price of mining shares in San Francisco yesterday, 8th inst.

Alpha.....	11⅛	Mexican.....	12¾
Belcher.....	5	Northern Belle...	15¾
Best & Belcher.....	10¾	Ophir.....	14⅜
Bullion	6¾	Original Comstock.....	..
Caledonia.....	2¾	Overman	16¾
California.....	28⅜	Raymond & Ely.....	8¼
Chollar Potosi.....	31½	Santiago	..
Con. Imperial.....	1	Savage	8¾
Con. Virginia.....	26¾	Seg. Belcher.....	30
Confidence.....	5	Sierra Nevada.....	4¼
Crown Point.....	5⅛	Silver City.....	..
Eureka	45	Silver Hill..... ...	2
Exchequer.....	4¾	South Comstock.....	..
Gould & Curry.....	9¾	South California.....	..
Hale & Norcross.....	9	Southern Star.....	..
Indian Queen.....	..	Trenton	..
Julia	2	Union Con.....	7
Justice.....	9¾	West Belcher.....	..
Kentuck.....	5½	Yellow Jacket.....	8¾
Kossuth.....	..	Young America.....	..
Leopard.	1		

The *Commercial Herald* of the 1st inst., says of the San Francisco market:—"Although the aggregate sales in the San Francisco Board were somewhat increased over the transactions of the previous week, the market was very much broken, and the fall in prices extended throughout the whole range of offerings with scarcely an exception. No one seems to care to uphold any class of stocks, and while this condition of affairs prevails, the small fry shares are kept dancing before the eyes of the small investors in a most tantalizing manner, and so the deal is at present very extensively carried on with people of small and ill-spared means, who are captivated by the smallness of the price, but who invariably come out with less than they put in. A better opportunity to deceive presents itself in the manipulation of these low priced stocks, and for the want of combination and concentration in more prominent shares, the work is more vigorously prosecuted in that direction, and while the small nibblers have so strong a taste for that class of securities, the speculators are anxiously inclined to accommodate them to their full taking capacity. It has established a sort of firmness in these shares that is somewhat anomalous, but which is nevertheless working as favorable as could be expected for the benefit of the shrewd manipulators."

MINING STOCKS AT AUCTION.—The following stocks were sold at auction in Philadelphia during the week, at the prices annexed:

Placer Gold Mining Estate of Colorado.—26 shares, $1.56 for the lot.

Amygdaloid Mining Co. of Michigan.—370 shares, at $4.70 for the lot.

Triunfo Silver Mining & Commercial Co.—100 shares, at $2 for the lot.

People's Gas Company of Baltimore.—10 shares of the stock of this company were sold during the week at 13⅜ per cent.

Baltimore Gas Company.—$2,000 of this company's bonds sold during the week at 103 per cent.

Gas Stocks.

NEW YORK, FRIDAY EVENING, Nov. 9, 1877.

Gas stocks have been very dull during the past week, and the general list is unchanged. We advance

COAL TRANSPORTATION AND GENERAL MINING STOCKS.

Name and Location of Company.		Feet on Vein.	Capital Stock	Shares No.	Shares Par Val.	Assessments. Total levied to date.	Assessments. Date and amount per share of last. Mo.	Yr.	Amt.	Dividends. Total paid to date.	Last Dividend. Mo.	Yr.	Amt.	Rate per Ann.	Highest and Lowest Quotations per Share in Currency. Nov. 3. H.	L.	Nov. 5. H.	L	Nov. 6. H.	L.	Nov. 7. H.	L.	Nov. 8. H.	L.	Nov. 9. H.	L.	Sales.
Coal Stocks.			$			$				$				Per cent.													
Consol. Coal	Md.	....	10,250,000	102,500	$100	*	.....	.....	.....	...	Jan..	1877	2½	10	..	..	..	..	..	..	..	..	..	..	..	..	....
Del. & H. Canal	Pa.	....	20,000,000	200,000	100	*	.....	.....	.....	38,821,104	Aug.	1876	4	8	47	46½	47½	45½	..	..	45¾	45½	45½	43¾	44	43	5,814
Del., Lac. & W. RR.	Pa.	...	26,200,000	524,000	50	*	.....	.....	.....	....	July	1876	2½	5	50¾	50½	51⅛	50¼	..	..	50½	49¾	50	47⅛	48	40	51,665
Lehigh C. & N.	Pa.	....	10,448,550	208,971	50	*	.....	.....	.....	...	Sep.	1876	1¾	6	18	16⅞	17⅛	17¼	..	..	17½	17	16¾	16¾	15½	16¼	1,969
Lehigh Valley RR.	Pa.	....	27,042,900	540,858	50	*	.....	.....	.....	....	Oct.	1877	1	5	38⅛	38¼	38⅜	38½	38⅛	38⅛	38⅛	38⅛	38½	38¼	38½	38¼	588
Maryland Coal	Md.	....	4,600,000	44,000	100	*	.....	.....	.....	....	Jan..	1876	1½	1½	..	..	..	..	..	..	..	..	..	..	..	..	....
N. J. Central RR.	Pa.	....	20,600,000	206,000	100	*	.....	.....	.....	....	Apr.	1876	2½	10	14⅛	14¼	..	..	..	..	15	14½	14¼	12¾	12¾	11¼	2,970
Penna. Coal	Pa.	....	5,000,000	100,000	50	*	.....	.....	.....	....	Aug.	1877	3	12	..	..	..	..	..	..	..	..	..	..	..	..	....
Pennsylvania RR.	Pa.	....	68,868,700	1,377,376	50	*	.....	.....	.....	....	May.	1877	1½	10	30⅜	29⅞	30⅜	29⅞	30¼	29⅞	30⅜	30⅛	30¼	29⅞	30¼	30⅛	26,803
Phil. & Read. RR.	Pa.	....	34,278,755	685,575	50	*	.....	.....	.....	...	Jan..	1876	2½		15⅜	15⅛	15¼	15⅜	15¼	15¼	15⅜	15⅜	15⅜	15⅜	15⅞	15	7,995
General Mining Stocks																											
Alpha Cons. g. s.	Nev.	300	3,000,000	30,00	100	270.000	Aug.	1877	$1 00	...	.. ..	...	.....	..	11	..	11	..	..	..	12	..	12¼	..	12	..	700
American	Colo.	....	1,000,000	100,000	10	*	....	....	....	....	....	....	.....	..	4⅛	4	4⅛	4	..	..	4⅛	..	4⅛	..	4¼	4⅛	9.700
Am. Flag, g	Colo.	5.300	600 .000	60,000	10	*	.....	.....	.....	....	.....	.....	.....	..	13C	12C	12C	..	..	..	12C	..	11C	..	12C	11C	4,000
Belcher. g. s.	Nev.	1 040	10,400,000	104,000	100	1,072,400	Sept	1877	1 00	15,397,200	Apr.	1876	$1 00	12	..	..	..	..	..	..	..	..	..	..	..	..	....
Bertha & Edith g	Vir.	645 acs.	3,500,000	350,000	10	*	.....	.....	.....	....	.....	.....	.....	..	8c	6c	7c	..	..	..	7c	..	6c	5c	4c	..	8,500
Best and Belcher, g. s.	Nev.	545	10,080,000	100,800	100	337.792	Aug.	1877	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Bobtail, g	Colo.	2,500	1 736,630	227,326	5	*	.....	.....	.....	....	.....	.....	.....	..	2½	..	..	..	..	..	..	..	..	..	..	..	100
Bobtail Tunnel, g	Colo.	....	100,000	20.000	5	6,000	July	1873	0 30	20,000	Dec..	1876	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Bullion, g. s.	Nev.	943½	10,000,000	100,000	100	2,702,000	Nov.	1877	1 50	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Caledonia, g. s.	Nev.	2,188	10,000,000	100,000	100	1,435,000	Nov.	1877	75	....	.....	.....	.....	..	2¼	..	2½	..	..	..	2¼	..	2¼	..	2¼	..	800
California, g. s.	Nev.	600	54,000,000	540,000	100	...	.....	.....	.....	19.440.000	Oct.	1877	2 00	24	..	..	..	..	..	..	..	..	..	..	..	..	....
Chollar Potosi, g. s.	Nev.	1,400	2,800,000	28,000	100	1,496,000	Oct.	1877	3 00	3,080,000	Feb..	1872	1 00	12	..	..	..	..	..	..	..	..	..	..	..	..	....
Cleveland, g	Colo.	3.715	250,000	25,000	10	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	7¼	7⅛	..	..	....
Cons. Hercules & Roe.	Colo.	16,500	1,000,000	100,000	10	*	.....	.....	.....	120,000	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Cons. Imperial, g. s.	Nev.	468	50,000,000	500,000	100	575,000	Oct.	1877	0 20	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Con. N. Slope & E. C. T.	Colo.	15,000	500,000	10,000	50	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Cons. Virginia, g. s.	Nev.	710	54,000,000	540,000	100	474,600	June	1873	3 00	33,480,000	Oct.	1877	2 00	24	..	..	..	..	..	..	..	..	..	..	..	..	....
Confidence, g. s.	Nev.	130	2,496,000	24,960	100	243,840	Mar.	1873	1 00	78,000	May.	1865	8 ⅓	..	5¾	..	5½	..	..	..	5½	..	5¾	5	..	..	1,000
Crown Point, g, s.	Nev.	600	10,000,000	100,000	100	1,573,370	Sept.	1877	1 00	11,588,000	Jan..	1875	2 00	24	..	..	..	..	..	..	..	..	..	..	5½	..	200
Douglas	Colo.	21,000	1,000,000	10,000	100	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Eureka Cons. g. s. L.	Nev.	..	5,000,000	50,000	100	100,000	May	1876	1 00	1,150.000	Oct.	1877	3 00	..	..	..	..	..	..	..	47	..	46	..	47	..	200
Eureka G. Mg. g	Cal'f		2,000,000	20,000	100		.....	.....	.....	2,134,000	Aug.	1877	2 00	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Exchequer, g. s.	Nev.	400	10,000,000	100,000	100	280,000	Sept.	1876	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Gould and Curry, g. s.	Nev.	621	10,800,000	108,000	100	2,352,000	Aug.	1877	1 00	3,934,800	Oct..	1870	10 00	..	7¾	..	7	..	..	..	8¾	..	8½	..	9⅛	..	700
Granville Gold	N. C.	9,000	1,000,000	100,000	10	*	.....	.....	0 50	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Hale & Norcross, g. s.	Nev.	400	11,200,000	112,000	100	2,634,000	Nov.	1877	1 00	1,598,000	Apr.	1871	1 00	12	..	..	..	..	..	..	7¼	..	7	..	..	..	500
Henry Tunnel	Nev.	3,000	2,000,000	80,000	25	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Hukill, g. s	Colo.	3,288	1,000,000	100,000	10	*	.....	.....	.....	10.,000	Nov.	1877	0 10	12	..	..	4¼	4	..	..	..	..	..	..	4⅛	..	500
Julia Cons., g. s.	Nev.	3,000	11,000,000	110,000	100	440,000	Aug.	1877	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Justice, g. s.	Nev.	2,100	10,500,000	105,000	100	2,027,500	Oct.	1877	2 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Kentuck, g. s.	Nev.	95	3,000,000	30,000	100	270.000	Dec..	1874	1 00	1,252,000	Mar.	1870	5 00	..	6	..	6	..	..	..	6¼	6	..	..	5¾	..	1,100
Kossuth, g. s.	Nev.	2,700	5,400,000	108,000	50	421,200	Aug.	1877	0 15	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Lacrosse	Colo.	3,900	1,000,000	100,000	10	*	.....	.....	.....	....	.....	.....	.....	..	31C	29C	30C	..	..	..	29C	..	28C	27C	29C	28C	9,980
Leopard, L. g. s.	Nev.	1,500	5,000,000	50,000	100	100,000	July.	1877	50	162,500	Dec..	1876	0 50	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Lucerne Mining	Colo.	4,200	5,000,000	500,000	10	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Mariposa, preferred	Cal.	44.387	5,000,000	50,000	100	1,425,000	June	1877	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
" common	"	acres.	10,000,000	100,000	100	1,425,000	June	1877	1 00	..	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Memphis	Colo.	6,000	300,000	60,000	5	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Merrimac, s	Mass.	1,500	500,000	50,000	10	*	.....	.....	.....	90,000	Nov.	1877	10C	12	..	..	..	..	..	..	..	..	..	..	..	..	....
Mexican, g. s.	Nev.	600	10,080,000	100,800	100	181.440	Aug.	1877	0 30	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Moose	Colo.	39,000	2,000,000	200,000	10	....	.....	.....	.....	100,000	Oct.	1877	0 25	..	6¾	6½	6¾	5¾	..	..	6¾	6⅜	6⅝	..	5⅞	6⅜	12,600
N. Y. & Colo., g	Colo.	....	1,000,000	50,000	20	*	.....	.....	.....	20.000	Mar.	1877	0 20	..	2	1⅞	..	..	..	..	2¼	2⅛	..	..	2⅛	2	1,800
Northern Belle, s	Nev.	1,600	5,000,000	50,000	100	...	.....	.....	.....	1,400,000	Oct.	1877	1 00	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Ontario.	Utah	3,000	10,000,000	100,000	100	....	.....	.....	.....	700,000	Nov.	1877	1 50	6	23⅝	..	24	23⅛	..	..	24⅛	24	24¼	..	24¼	24⅜	1,775
Ophir, g. s.	Nev.	675	10,080,000	100,800	100	2,934,400	May.	1875	2 00	1,394,400	Mar.	1874	4 00	..	13½	..	14¼	..	..	..	..	..	..	..	..	..	200
Original Comstock, g. s	Nev.	....	10,000,000	100,000	100	....	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Overman, g. s.	Nev.	1,200	3,840,000	38,400	100	2,452,680	June	1877	3 00	....	.....	.....	.....	..	..	..	15¾	..	..	..	16½	..	15⅛	..	..	..	300
Pleasant View, g	Colo	1,200	200,000	20,000	10	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Quicksil. preferred	Cal.	8,500	4,291,300			*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	36	..	36	..	35½	..	845
" common	"	acres.	5,708,700	100,000	100	....	.....	.....	.....	....	.....	.....	.....	..	17¼	..	..	..	..	..	18	..	17⅛	..	17¼	..	1,000
Raymond and Ely, g. s.	Nev.	5,000	3,000,000	30,000	100	540,000	Dec.	1876	1 00	3,075,000	Sept.	1873	3 00	..	..	..	..	..	..	..	..	..	..	..	..	..	....
St. Joseph, L.	Mo.	2600 acs.	1,000,000	100,000	10	....	.....	.....	.....	250,000	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Santiago, g. s.	Nev.	2,000	11,200,000	112,000	100	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Savage, g. s.	Nev.	800	11,200,000	112,000	100	3,408,500	Sept.	1877	1 00	4,460,000	June	1869	3 00	..	8¾	..	8½	..	..	..	8½	..	..	..	8⅛	..	700
Seaton, g. s.	Colo.	1,700	500,000	50,000	10	*	.....	.....	.....	10,000	May.	1877	0 10	12	..	..	..	..	..	..	..	..	1.55	..	1.60	..	400
Seg. Belcher. g. s	Nev.	160	640,000	6,400	100	244,800	Apr.	1876	5 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Sierra Nevada. g. s.	Nev.	3,650	10,000,000	100,000	100	1,800,000	Oct.	1877	0 50	....	Jan..	1871	1 00	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Silver City, g s	Nev.	3,900	6,310,000	63,100	100	15,775	Nev.	1876	0 25	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Silver Hill, g. s.	Nev.	5,400	5,400,000	54,000	100	972,000	July.	1877	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
South Comstock, g. s.	Nev.	1,500	10,000,000	100,000	100	54,000	Jan	1877	0 25	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
South. California, g. s.	Nev.	1,500	5,000,000	50,000	100	....	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Southern Star. g. s.	Nev.	1,500	6,000,000	600,000	100	.....	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Trenton, g. s.	Nev.	..	10,000,000	100,000	100	....	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Union Cons., g. s.	Nev.	850	10,000,000	100,000	100	285,000	Oct.	1877	25	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
West Belcher, g. s.	Nev.	1,000	10,000,000	100,000	100	....	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Yellow Jacket, g. s.	Nev.	1,200	12,000,000	120,000	100	1,198,000	Sept.	1877	2 00	2,184,000	Aug.	1871	2 50	..	..	..	..	..	..	..	..	..	8¾	..	..	..	200
Young America, g. s.	Nev.	1,000	3,000,000	30,000	100	6,000	Oct..	1876	0 20	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Copper Stocks.																											
Allouez, c.	Mich.	..	1,000,000	20,000	50	940,000	May.	1876	5 00						.....		.....		.....		.....		.....		.....		.....
Calumet & Hecla, c.	Mich.	..	2,000,000	80,000	25	1,200,000	.....	.....	.....	11,850,000	Aug.	1877	5 00	20	.....		.....		.....		.....		.....		.....		.....
Central, c.	Mich.	..	500,000	20,000	25	100,000	June	1862	0 65	1,160,000	Feb.	1877	7 00	28	.....		.....		.....		.....		.....		.....		.....
Copper Falls, c.	Mich.	..	1,000,000	20,000	50	535,000	May.	1876	.....	100,000	Nov.	1871	1 00	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Dana, c.	Mich.	..	500,000	20,000	25	68,000	Jan..	1863	0 50	...	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Dawson, s.	Ont.	..	1,200,000	60,000	20	....	.....	.....	.....	....	.....	.....	.....	..	.....		.....		.....		.....		.....		.....		.....
Duncan, s.	Ont.	..	1,200,000	60,000	20	75,000	July.	1876	41⅔	....	.....	.....	.....	..	.....		.....		.....		.....		.....		.....		.....
Franklin, c.	Mich.	..	500,000	20,000	25	360,000	June	1876	5 00	585,000	Nov.	1871	1 00	..	.....		.....		.....		.....		.....		.....		.....
Humboldt, c.	Mich.	..	500,000	20,000	25	100,000	Sept.	1876	0 15	....	.....	.....	.....	..	.....		.....		.....		.....		.....		.....		.....
International, s.	Ont.	..	1,200,000	60,000	20	....	.....	.....	.....	....	.....	.....	.....	..	.....		.....		.....		.....		.....		.....		.....
Madison, c.	Mich.	..	500,000	20,000	25	123,000	Sept.	1876	0 10	....	.....	.....	.....	..	.....		.....		.....		.....		.....		.....		.....
Mesnard, c.	Mich.	..	500,000	20,000	25	160,000	Apr.	1876	0 50	....	.....	.....	.....	..	.....		.....		.....		.....		.....		.....		.....
Minesota, c.	Mich.	..	1,000,000	20,000	50	436,000	June	1869	1 00	1,820,000	Mar.	1876	0 50	..	.....		.....		.....		.....		.....		.....		.....
National, c.	Mich.	..	500,000	20,000	25	195,000	Oct..	1875	1 00	360,000	Oct..	1873	1 00	..	.....		.....		.....		.....		.....		.....		.....
Osceola, c.	Mich.	..	1,000,000	40,000	25	885,000	May.	1876	2 00	....	.....	.....	.....	..	.....		.....		.....		.....		.....		.....		.....
Petherick, c.	Mich.	..	500,000	20,000	25	165,533	Mar.	1876	0 50	....	.....	.....	.....	..	.....		.....		.....		.....		.....		.....		.....
Pewabic, c.	Mich.	..	500,000	20,000	25	185,000	June	1868	3 00	460000	July	1873	1 00	..	.....		.....		.....		.....		.....		.....		.....
Phœnix, c.	Mich.	..	1,000,000	20,000	50	817,500	Sept.	1870	3 00	20,000	Jan.	1876	1 00	..	.....		.....		.....		.....		.....		.....		.....
Quincy, c.	Mich.	..	200,000	20,000	10	....	.....	.....	.....	2,130,000	Feb.	1877	4 00	..	.....		.....		.....		.....		.....		.....		.....
Ridge, c.	Mich.	..	500,000	20,000	25	200,000	.....	.....	.....	90,000	Feb.	1875	1 00	..	.....		.....		.....		.....		.....		.....		.....
Rockland, c.	Mich.	..	500,000	20,000	25	495,000	Jan..	1874	1 00	....	...	...	.....	..	.....		.....		.....		.....		.....		.....		.....
Star, c.	Mich.	..	500,000	20,000	25	265,000	Mar.	1876	0 50	....	.....	.....	.....	..	.....		.....		.....		.....		.....		.....		.....
Superior, c.	Mich.	..	500,000	20,000	25	340,000	Mar.	1874	0 25	....	.....	.....	.....	..	.....		.....		.....		.....		.....		.....		.....

g. Gold. s. Silver. L. Lead. c. Copper. * Non-Assessable.

Total Assessments levied to date ..... $47,166,310 | Total Sales of coal stocks for the week ..... 97,804 shares.
Total Mining Dividends disbursed to date ..... 126,196,084 | Total Sales of Mining Shares for the week ..... 57,920 do

the quotation of the Harlem Gas Company $5 per share. The stock of the Nassau, of Brooklyn, and the Williamsburg gas companies also show slight improvements in prices.

St. Johns, N. B. Gas Works.—These works have been rebuilt and are now in full operation. The *Telegraph* of the 1st inst., in speaking of these works, says:

"The new gas works will be much more complete and perfect in their appointments than the old. The old works were built in 1845, since which time very great changes and improvements have been made in making gas. The directors have taken advantage of their misfortunes to obtain the most modern and perfect apparatus for making gas. These works consist, first, of a retort house 100x60, 50 feet in height, built of brick and iron. It is built to receive 18 benches, but only 10 are as yet erected, which will be sufficient to answer the wants of the city for many years to come. Each bench has five retorts, so that fifty retorts will be employed in making gas for St. John. The purifying house is 80x32 feet, built of brick with an iron roof slated over. It contains four purifiers 12x16 feet each. Each purifier contains seven sieves, charged with lime, and these four purifiers are capable of manufacturing 300,000 cubic feet of gas every 24 hours. Three brick tanks have been built as reservoirs for holding tar, instead of having to barrel it and stow it away on the premises which was formerly done. That plan wasted room and was moreover dangerous. Tar in an underground tank cannot well take fire. Hereafter it will only be barreled as it is ordered. These tanks will hold over 300 barrels of tar. A large lime kiln is also being built in the rear of the building for the purpose of burning the lime required in the manufacture of gas. The limestone used comes as ballast, chiefly from Cork, and is found to answer the purpose much better than our native limestone. The improvements and new erections made will cost upwards of $80,000 when completed, and probably $100,000 will be required to make everything perfect, as many of the pipes in the streets are broken. The circumstance will prevent the Water street and wharf sections of the burnt district from being supplied with gas until spring. At present the supply will be furnished to the unburned portion of the city and as much of the burnt portion as possible."

San Francisco Gas Co.—The stock of this company continues to decline. We note recent sales amounting to 900 shares at from 100½ to 100, closing weak at the lower figure, owing, it is said, to proposed opposition.

Montreal Gas Co.—We note recent sales of 100 shares of the stock of this company at from $149 to $150 per share.

The Lawrence, Kan., Gas Co. has accepted the proposition of the city council. Henceforth there will be light. The substance of the proposition is that for three years the city will pay the gas company $22.50 per lamp per year; this is to include all costs for lighting, extinguishing, cleaning, replacing broken globes and defective lamp cocks; the lamps to be kept lighted until midnight.

New York Gas-Light Co.—100 shares of the stock of this company were sold at auction during the week at $124 per share.

Manhattan Gas-Light Co.—100 shares of this stock were sold at auction at $213 per share.

Connellsville Gas Coal Co.—2,000 shares of the stock of this company, par $50, were sold in Philadelphia during the week at auction, at 6c. per share.

The following list of Companies in New York and vicinity are corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas stocks, No. 30 Broad street, N. Y.

Companies in New York and vicinity.	Capital Stock.	Par.	Dividends. Rate per an.	Dividends. Am. of last.	Dividends. Date of last.	Quotat'ns Bid.	Quotat'ns As'd
	$						
Mutual, N. Y.....	5,000,000	$100	10%	2½	Oct. '77	62	95
" Gold Bonds	90,000	1,000	7%	3½	Feb. '77	100	103
N. York "	4,000,000	....	10%	5	Nov '77	123	125
Metrop. "	2,500,000	100	10%	5	June '77	131	132½
" " Certf.	1,000,000	....	7%	3½	" "	100	103
" " Bonds	500,000	1,000	7%	3½	" "	102	—
Harlem "	1,850,000	50	8%	3½	Aug. '77	95	100
Manhat. "	4,000,000	50	....‡	5	Nov '77	205	215
Brooklyn, B'klyn.	2,000,000	52	15%	5	July '77	165	175
Nassau, "	1,000,000	25	....‡	4	July '77	76	80
" " Certf.	700,000	1,000	7%	3½	July '77	98	101
People's, "	1,000,000	10	....‡	3½	July '76	30	45
" " Certf.	300,000	1,000	7%	3½	July '77	80	85
" " B'ds	325,000	....	7%	3	Feb. '77	96	100
Metrop. "	1,000,000	10	5%	2½	May '77	67½	72
Wmsb'rg "	1,000,000	50	10%	2½	July '77	117	123
" " Certf.	1,000,000	....	7%	3½	July '77	100	102
Citizen's "	1,200,000	20	....‡	4	Jan. '77	79	85
" " Certf.	320,000	1,000	7%	3½	Oct. '77	97	100
J. C., N. J.....	750,000	20	10%	5	July '77	160	—
Cent. Westch. N.Y	466,000	50	7%	4	July '77	80	90
Subur'n " "	295,000	50	7%	3½	Oct. '77	—	95
Municipal, N.Y..	1,500,000	100	.....	.....	.....	70	72½

‡ Paid irregularly.

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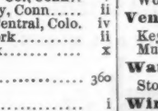

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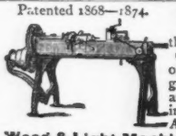

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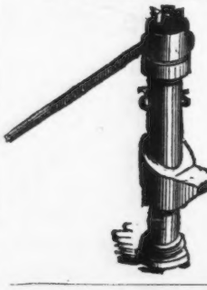

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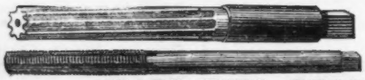

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